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[redacted]

LATEST

Virtual memory draws nearer

SAN FRANCISCO — With Apple now in the picture, the hot topic of virtual memory for the Macintosh just got hotter.

In a keynote speech at this month's Macworld Expo, Jean-Louis Gassée, president of Apple Products, said, "Apple will have virtual memory in 1989." He declined to provide details, but sources close to the company said Apple is preparing to distribute a beta version of a virtual memory Startup document (INIT). The new software will allow Mac II, IIx and SE/30 owners to use hard disk space as the equivalent of additional RAM.

Connectix Corp. of Menlo Park, Calif., announced its own virtual memory INIT, called Virtual, earlier this month (see MacWEEK, Jan. 10).

"Apple's going to try to get it to

See VIRTUAL, Page 9

Apple earnings to plummet

CUPERTINO, Calif. — Apple said last week it expects earnings for the fiscal quarter ending March 30 to be in the range of $.35-$.45 per share, down from $.61 per share for the same quarter a year ago. "Internal decisions made by the company are causing our gross margins and, as a result, our earnings per share to be be under pressure," CEO John Sculley said. "We are taking steps to ease this pressure and sustain good financial performance for the second half of the year." Sculley cited DRAM purchased "at peak prices" last summer as the key problem. ☐

GA *Inside this issue*

HERE COMES MULTI-MEDIA

HyperTV en route to desktop reality

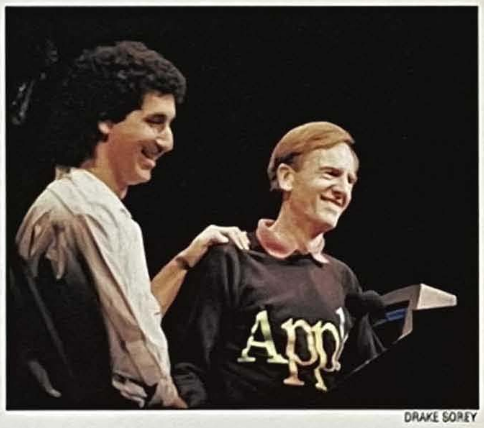
BY CLAIR WHITMER

SAN FRANCISCO — CEO John Sculley used his keynote address at Macworld Expo to demonstrate what the company hopes will be a standard for the way users interact with video on the desktop: HyperTV.

Sculley's speech was part nostalgia for the five Mac years commemorated at this expo, part pep talk for the next five years, and part show and tell for the new technology called HyperTV (see Editorial, Page 20).

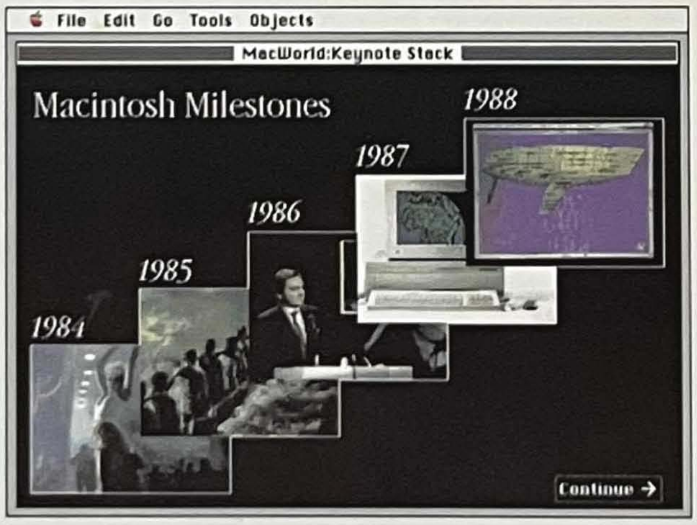
Using a pre-release NuView video capture card from AST Research Inc. of Irvine, Calif., together with Apple-produced HyperCard external commands (XCMDs), to play live video clips

See HYPERTV, Page 8



DRAKE SOREY

Steve Maller (left) and John Sculley, at Macworld Expo, using HyperTV to celebrate the Mac's first five years (below).



Apple MIDI goes multi

Driver lets applications run in concert

BY JAMIE KRUTZ

ANAHEIM, Calif. — While the eyes of most of the Mac community were focused on the Macworld Expo in San Francisco, Apple made an important announcement at another trade show held here the same weekend, previewing a new software tool kit aimed at bolstering the Mac's position in the world of music.

Rock stars, music store owners, and music product manufacturers and distributors attending the 1989 National Association of Music Merchants winter show were treated to a preview of Apple's new MIDI Management Tools.

The tools, slated for final release

See MIDI, Page 9

Three-slot Mac set to launch in March

'030 box to debut in Hanover

BY CLAIR WHITMER
AND JONATHAN PERROW

CUPERTINO, Calif. — Apple is preparing to launch a three-slot version of its Mac IIx in the first week of March, according to an internal document examined by MacWEEK.

Sources close to Apple said the 68030-based Three-Slot is already in limited production and will be announced at the Hannover Faire show in Hanover, West Germany. The machine will also be unveiled in the United States at the same time.

Sources close to Apple said that the company had dropped tentative earlier plans to stop production of the Mac II, which has a 68020 processor.

▸ Memory and hard disk configurations for the Three-Slot are still undetermined, but the machine features a 68030 processor, the same ROM as the IIx, the 1.44-Mbyte SuperDrive and three NuBus slots. The CPU is designed for horizontal or vertical storage so that it could be kept under a desktop.

Depending on configuration, the machine is likely to be priced between the SE/30 and a base Mac IIx, or around $6,000.

▸ Apple is also experimenting with surface-mounted, instead of socketed, microprocessors to cut manufacturing costs. In addition, it is at work on a series of video cards including a one-bit display card and a frame grabber card, according to the document.

▸ The document also describes several high-end Macs with a new motherboard design, which may appear as early as August.

Despite Apple's apparent decision to keep the current Mac II in production, some customers and analysts expressed doubt that the 68020-based machine will continue to find a niche in the face of competition from the Mac IIx, the SE/30 and the new three-slot model.

"We wouldn't buy any more Mac IIs if the Three-Slot came out," said a buyer at one of Apple's national accounts. ☐

Mac-DOS converter near

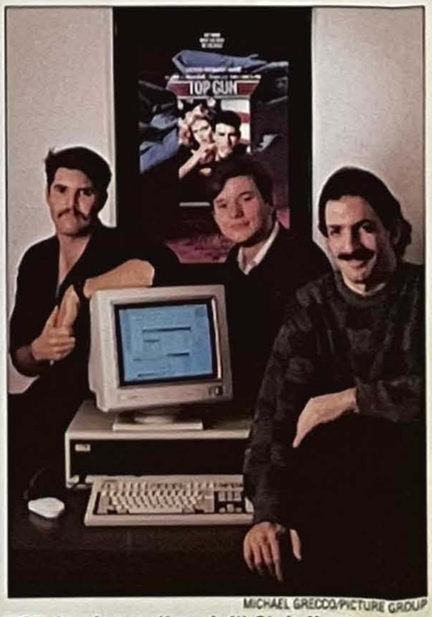
No response from Apple

BY JON SWARTZ
AND HENRY NORR

BURBANK, Calif. — A dénouement to the saga of MCP — a software package that promises developers an easy way to convert Mac applications into MS-DOS or OS/2 programs — may at last be imminent.

Beta copies of the software, which is called MCP, for Multiplatform Compatibility Package, will go to developers in late February, according to Stephen Greenfield, president of Screenplay Systems Inc., a

See MCP, Page 9



MICHAEL GRECCO/PICTURE GROUP

MCP developers (from left) Chris Huntley, Gene Hightower and Stephen Greenfield.

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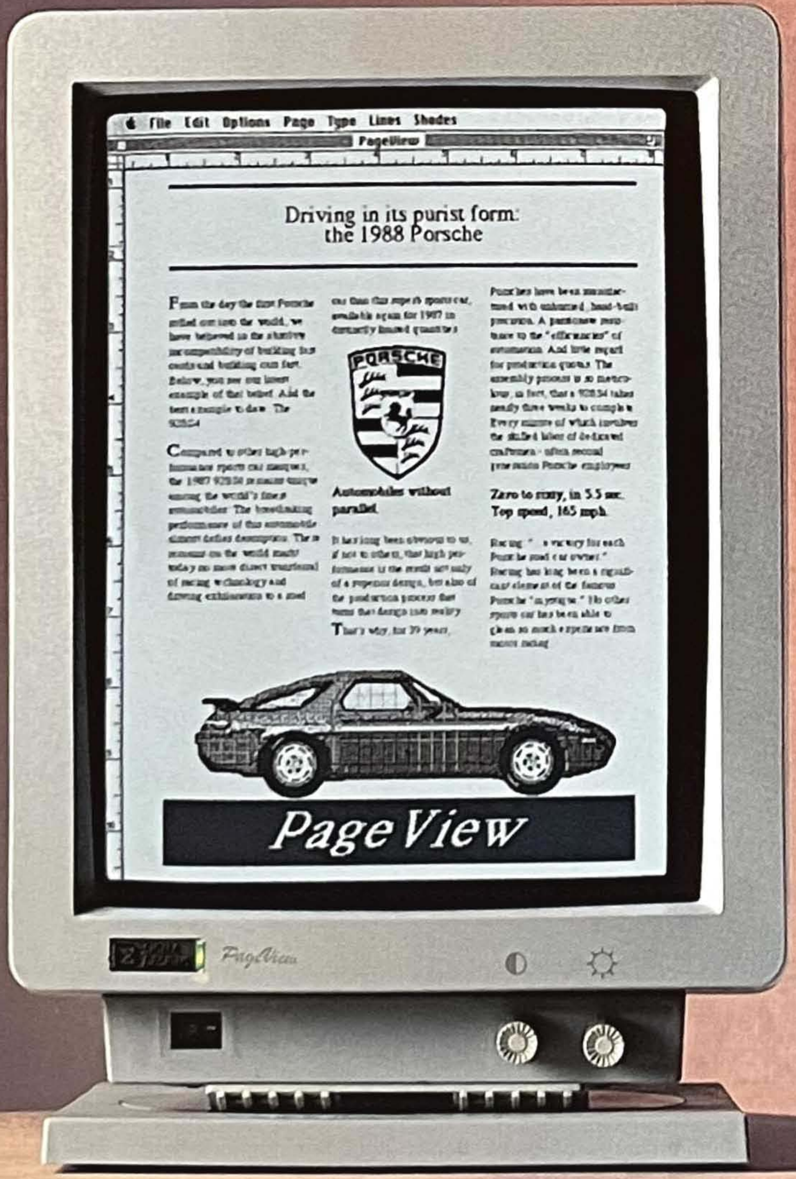

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Table editor creates complex tables

TableTools fills gap in DTP software

BY DANIEL FARBER

PALO ALTO, Calif. — Mansfield Systems has introduced TableTools, the first program designed specifically for creating financial and scientific tables on the Macintosh.

The $395 table editor, which is scheduled to ship in March, provides a WYSIWYG environment and a set of tools for creating tables of up to 128 columns by 512 rows.

To speed table creation, the new program provides a unique automatic data interchange facility. Under MultiFinder or the Finder, TableTools allows Excel data, including formulas, or objects created with Adobe Illustrator, Cricket Graph, Claris' MacDraw and MacPaint, and Ashton-Tate's FullPaint to be edited from within table cells.

The program automatically shuttles between the application in which the data or object originated and the cells in TableTools.

Mansfield Systems plans to publish driver specifications to developers so that they can take advantage of the data interchange feature, according to James Duke, company president.

TableTools fills a gap in Mac publishing tools, according to Craig Cline, associate editor of the Seybold Report on Desktop Publishing.

"At least for the next couple of years TableTools will be a very useful program for people who deal with tabular material in publications," Cline said. "Most of the tools today are rudimentary at best. Eventually, [table editors] will become an integral part of document processing and publishing packages."

Version 4.0 of Microsoft Word, which is now scheduled for release by March, will include a table editor but lacks many of the sophisticated features in TableTools.

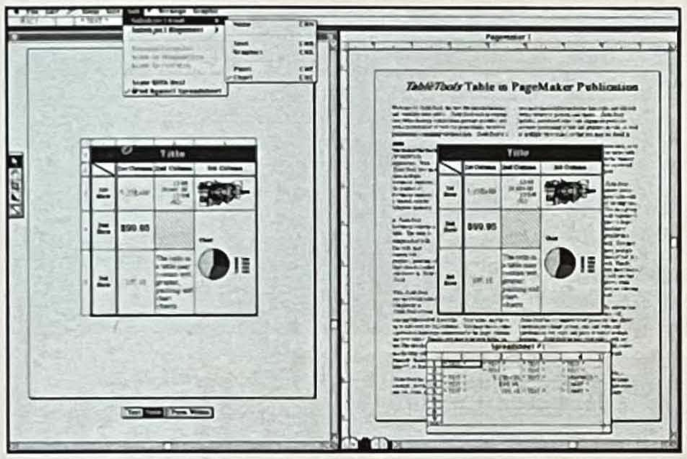
Tables constructed with the new Mansfield program can be placed directly in most publishing applications or in any application that accepts PICT files.

The program allows rows to grow automatically during typing and multiple lines of text in a cell. Each line of text in a cell can have its own ruler for controlling tabs, justification, leading and alignment. Text or cells can be selected discontinuously for making changes such as font, size and style modifications at multiple locations simultaneously. In addition, cells can be grouped horizontally or vertically.

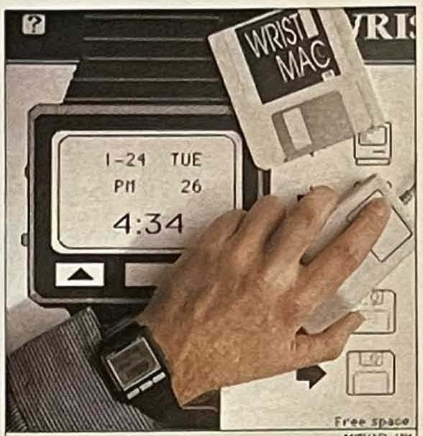
The program also has multiple borders, diagonal line styles, and fill shades and patterns for cells. TableTools allows up to 254 text and cell style sheets.

TableTools is an outgrowth of the development of TechScriber, Mansfield's still-unreleased technical layout package.

Mansfield Systems is located at 550 Hamilton Ave. Suite 150, Palo Alto, Calif. 94301; (800) 872-3332. □



TableTools tables can be placed directly in most desktop publishing programs, such as PageMaker, or in any application that accepts PICT files.



MICHAEL JAY

Dick Tracy Mac

While waiting for the ultimate Mac gadget, an Apple-logo laptop, users can mark time with something far smaller. Ex Machina's WristMac, a hit at this month's Macworld Expo, is really a Seiko watch with enough memory to hold up to 80 two-line screens of phone numbers, alarms, appointments and similar tidbits. A cable included with the watch connects to a Mac serial port for downloading data from WristMac's bundled HyperCard stack, Focal Point or other Mac software. The base model costs $225, a water-resistant executive version goes for $295 and an extra adapter for uploading from the watch back to the Mac is $45.

Ex Machina Inc. is located at 45 E. 89th St., Suite 39-A, New York, N.Y. 10128; (212) 831-3142.

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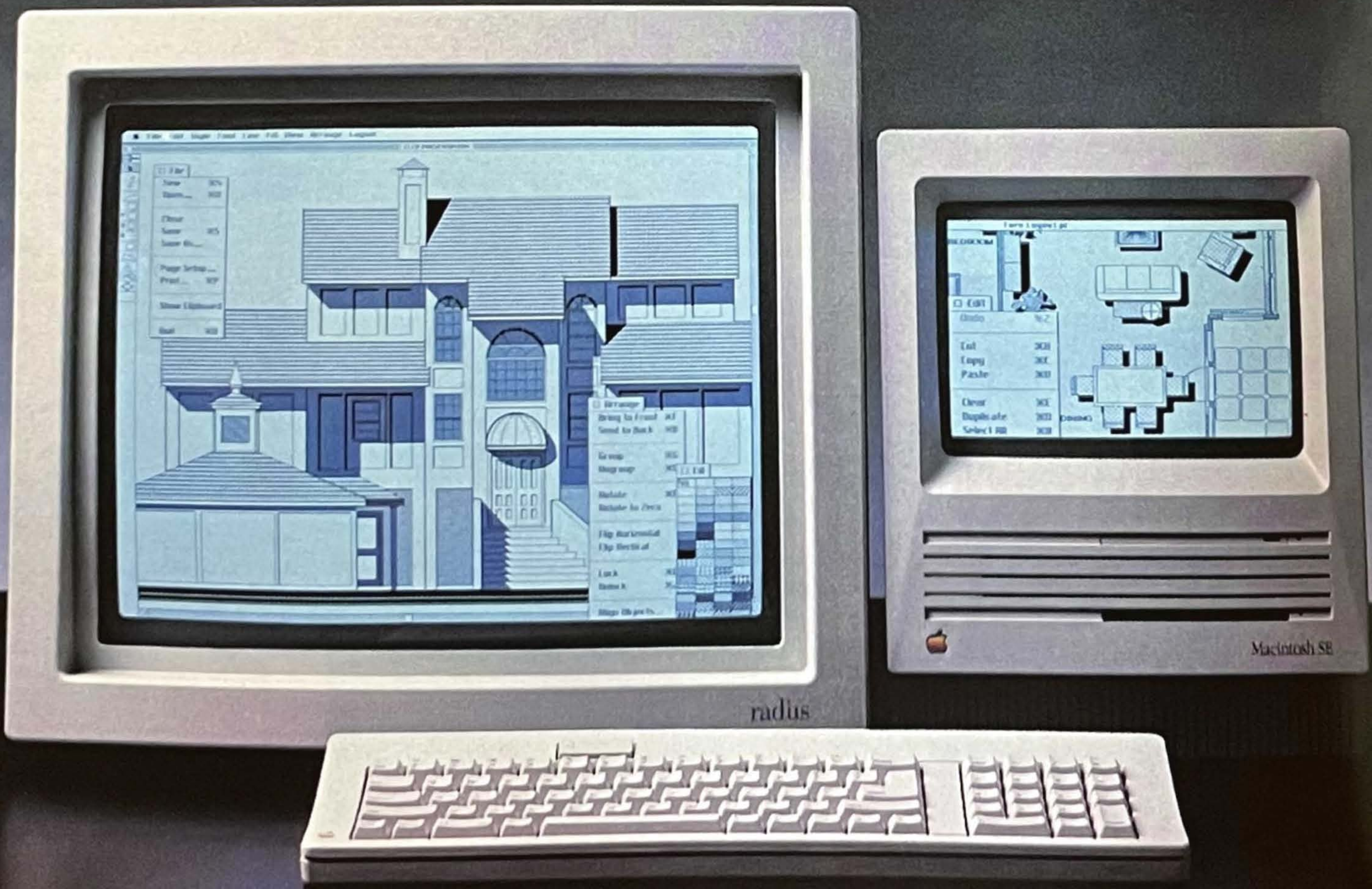
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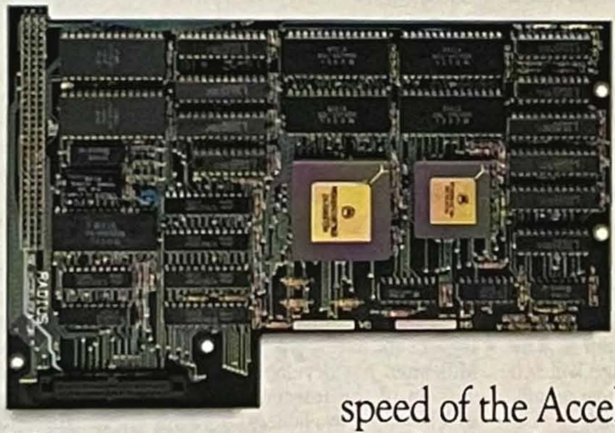

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HyperTalk-written HyperX ships

Expert system shell now commercial

BY CLAIR WHITMER

SAN FRANCISCO — Millenium Software's HyperX may have started out as shareware, but now the HyperCard-based expert system shell is hitting the big time, said Ron Evans, Millenium president.

Shipping this week in a $99.95 commercial version, HyperX is the first expert system development environment written entirely in HyperTalk. It provides forward and backward chaining, with rules and facts stored on cards as text. Version 3.0 enhancements include speed improvements of more than 200 percent, an improved interface, the ability to embed HyperTalk expressions directly into a rules card and support for confidence factors.

Evans said his program will be one of several products featured in an upcoming Apple video about OASIS, the networking architecture model under development at Apple's European research center.

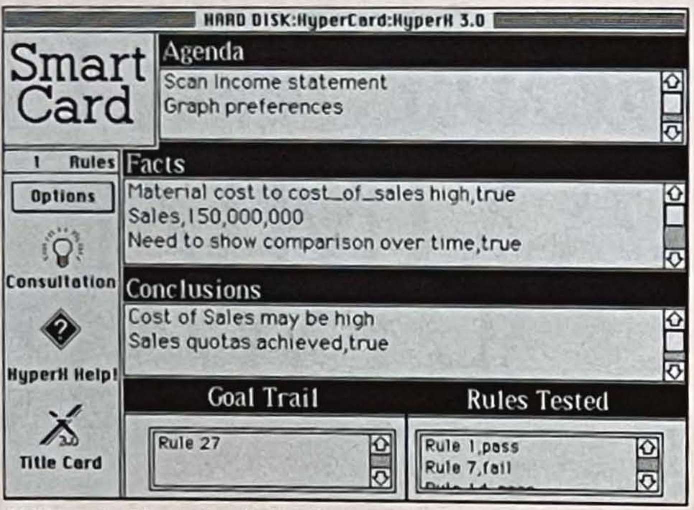
HyperX Version 3.0 includes an expert system authoring tool called Quest. Written in HyperX, Quest is designed to guide the user through the creation of a graphical interface for expert systems built with HyperX.

Describing his program as "definitely the price/performance leader in the AI field," Evans said he wrote HyperX out of frustration with the inflexibility of standard expert system shells. The program's HyperTalk source code is fully commented and open to users.

For programmers who feel HyperTalk execution is too slow, Millenium has developed a Pascal version of the inference engine, which will be available to developers for licensing.

Programmers who market expert systems created with HyperX will be charged $100 per developed product for an unlimited number of copies.

Millenium Software is located at 1970 S. Coast Highway, Laguna Beach, Calif. 92651; (714) 497-7439. ☐



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Conclusions
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Sales quotas achieved,true

Goal Trail
Rule 27

Rules Tested
Rule 1,pass
Rule 7,fail

Written out of frustration by Ron Evans, president of Millenium, HyperX 3.0 stores rules and facts on cards as text.

Connect's MacNET bridges series of E-mail packages

BY EMILY BROWER

CUPERTINO, Calif. — Connect Inc. has announced a series of new gateways and bridges to its Professional Information Network, commonly known to Macintosh users as MacNET.

The Cupertino, Calif.-based information and communications service is now connected to MCI Mail and DASnet, an electronic mail hub that exchanges messages among 26 networks including AT&T Mail, EasyLink, Telemail and The Source. Connect also plans to add a gateway to AppleLink Business Edition, a version of Apple's on-line information and communications network that is scheduled to become available in March, according to Paul Schmidman, Connect vice president.

In addition, CE Software of West Des Moines, Iowa, is developing a bridge to Connect for QuickMail, its Mac E-mail program. The QuickMail-Connect bridge will sell separately and will ship next month, according to Sue Nail, a CE spokeswoman.

Connect has also expanded its information offerings with the addition of Business Wire and an on-line airline reservations and information database from American Airlines.

Connect Inc. is located at 10101 Bubb Road, Cupertino, Calif. 95014; (408) 973-0110. ☐

IBM laser printer uses LocalTalk

BY CLIFF LEHMAN

PARK RIDGE, N.J. — IBM last week announced a new PostScript laser printer complete with an AppleTalk interface and an on-board Adobe controller.

The $4,999 Personal Page Printer II implicitly acknowledges the Mac's market presence, fills out the low end of IBM's PostScript printer family and further demonstrates the company's commitment to PostScript.

The new six-page-per-minute printer, available this month, can connect to the Mac through AppleTalk connectors or to IBM PCs and compatibles from other vendors through standard parallel and serial ports.

The new device marks a change in IBM's original strategy for desktop PostScript printing, which called for the controller to reside in the computer itself.

"IBM's previous implementation suffered by having the controller in the PC," said Michael Hopwood, Apple's LaserWriter product manager. "It's good news that they have decided to include LocalTalk, because it's the best way to share printing devices on the market."

Page Printer II's PostScript interpreter is on a controller card with a 16.67-MHz 68000 chip. The printer comes with 2 Mbytes of RAM, expandable to 4 Mbytes, and 43 resident PostScript fonts.

"PostScript printers at six ppm are fairly common. [IBM] will have to show me something that others don't have to get me to change," said Bill Cook, technical adviser of micro computing strategies at Pitney-Bowes Inc. of Norwalk, Conn.

Dove Computer Corp. is located at 1200 N. 23rd St., Wilmington, N.C. 28405; (919) 763-7918. ☐

SE/30 bus adapter

SAN FRANCISCO — Mac SE users who upgrade to Apple's new SE/30 model may benefit from Dove Computer Corp.'s Bus Adapter Card.

Dove last week announced the MaraThon 120/96 Bus Adapter, which allows expansion cards designed for the original Mac SE to function in Apple's new Mac SE/30.

The 120/96 Bus Adapter, announced in conjunction with Dove's FastNet Ethernet card for the SE/30, is set to ship on Jan. 31 for $199.

Dove Computer Corp. is located at 1200 N. 23rd. Willmington, N.C. 28405; (919) 763-7918. ☐

FOR THE RECORD

The phone number listed for Pacer Software in the Jan. 10 review of PacerShare was incorrect. The correct number is (619) 454-0565.

Kinetics shows LAN Ranger at expo

'Lone Ranger' makes appearance

BY JON SWARTZ

SAN FRANCISCO — With a pair of six-shooters and a mighty "Hi Ho, Silver," Kinetics Inc. corralled a heap of attention at this month's Macworld Expo.

The networking company enlisted the aid of Clayton Moore, star of the original "Lone Ranger" TV series, to publicize LAN Ranger, a new network management software package for its FastPath 4 Ethernet gateways. As part of the promotion, Kinetics also handed out several thousand black masks.

The icon-based network diagnostic software comes bundled with the $2,795 FastPath 4, but will be released as a stand-alone application in the third quarter.

Steve Nelson, director of advanced planning for Kinetics, said LAN Ranger combines sophisticated analysis with the look and feel of the Mac. The program displays a logical map of network topology, graphs traffic, and logs and time-stamps major events. It also provides several testing and troubleshooting options to help network administrators pinpoint and solve AppleTalk internetwork conflicts.

LAN Ranger is available free to current FastPath 4 customers.

Kinetics is located at 2540 Camino Diablo, Walnut Creek, Calif. 94596; (415) 947-0998. ☐

DRAKE SOREY

Kinetics promoted LAN Ranger with the help of the original TV Lone Ranger.

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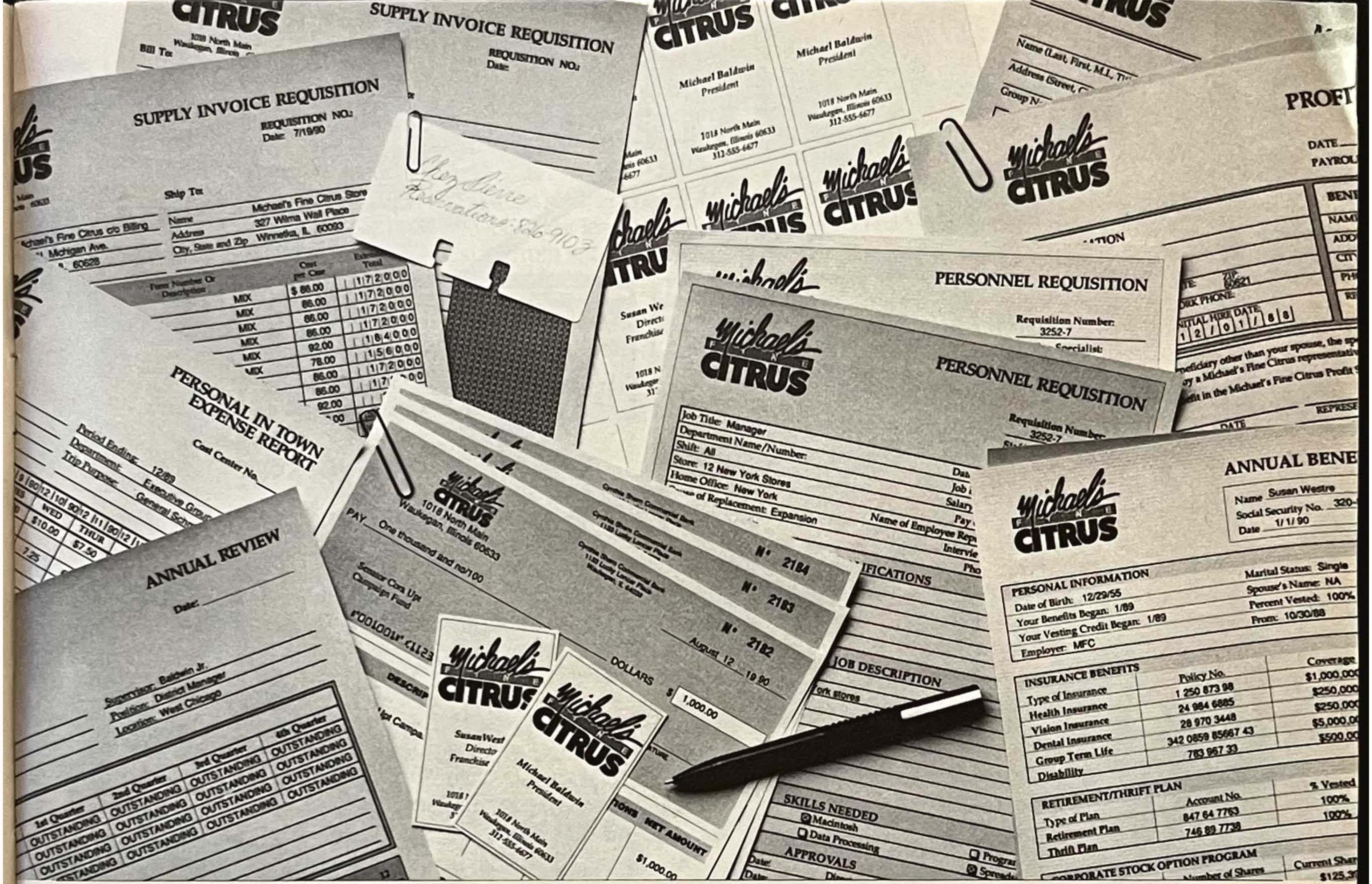

Large-screen anti-glare filters debut

NEW YORK — Kensington Microware last week announced five large-screen anti-glare filters that fit a variety of Macintosh monitors.

Made of optical-quality glass with a ceramic anti-reflection coating, the filters reduce reflected glare as much as 96 percent and improve screen contrast and clarity up to 20 times, according to the New York-based company.

The filters fit the following monitors:

▸ The AppleColor High Resolution RGB Monitor.

▸ The Radius Full Page Display and Sigma Designs PageView monitors.

▸ The Radius 19-inch Two Page Display, 19-inch Gray Scale Display and Sun 19-inch monitors.

The AppleColor and single-page Radius and Sigma filters are priced at $99.95, while the version for 19-inch displays costs $199.95.

In addition, Kensington announced a $99.95 aluminum monitor stand that allows a large-screen monitor to sit on top of the Mac II.

Kensington Microware is located at 251 Park Ave. S., New York, N.Y. 10010; (212) 475-5200. ☐

Ehman expands line of low-cost drives

EVANSTON, Wyo. — "Mac customers are paying more than they should for what they're getting [in hard drives], and it's time for them to stop getting stuck," said Michael Ehman, president of Ehman Engineering Inc., as he introduced the latest additions to his company's line of low-cost drives this month.

The new external models, which Ehman called "a breakthrough in value, not technology" include:

▸ The Ehman 20, a $399 20-Mbyte model with an average access time of 65 milliseconds.

▸ The Ehman 65, a 65-Mbyte drive with a 28-millisecond average access time and a price of $649.

▸ The Ehman 85, an 85-Mbyte model with a 28-millisecond average access time and a price of $699.

Ehman Engineering Inc. is at 97 S. Red Willow Road, Evanston, Wyo. 82930; (307) 789-3830. ☐

Digidesign plans SE/30 DSP boards

SAN FRANCISCO — The emphasis at Macworld Expo was on video and communications boards for Apple's new SE/30, but Digidesign Inc. was there to make sure the computer would have a digital signal processor board available.

Digidesign has been shipping DSP boards called Sound Accelerators for the 68000 SE and Mac II for several months. It is now adding a Sound Accelerator for the SE/30 based on the Motorola 56001-DSP chip. The product provides two channels of phase synchronous playback and supports one audio jack and one expansion port for analog/digital conversion or other peripherals.

Paul Lego, Digidesign chief operating officer, cited March as a likely shipping date. A price is yet to be set but will be in the same range as the current $1,295 SE card.

Digidesign is at 1360 Willow Road, Suite 101, Menlo Park, Calif. 94025; (415) 327-8811. ☐

TCP/IP program supports Mac

BY JON SWARTZ

BOSTON — VXM Technologies Inc. has introduced a Macintosh version of TIM, a TCP/IP program designed to streamline the construction of applications over multivendor networks.

TIM, the Boston-based company's TCP/IP Interface Module session layer software, now supports the Mac platform in addition to IBM RT, Sun, Apollo, MIPS and other workstations.

TIM provides TCP/IP users a uniform TCP/IP session layer that extends across Macs, MS-DOS machines, Unix workstations, VAX minicomputers and mainframes, according to Franco Vitaliano, VXM president.

TIM sidesteps the restricted communications usually associated with remote procedure call, an alternative method for building distributed applications across TCP/IP networks, by employing an "asynchronous, bidirectional flow of information," according to Vitaliano.

In addition, TIM on Mac:

▸ Allows a computer node to act simultaneously as a client and server.

▸ Runs on a wide variety of systems.

▸ Comes with a powerful network exerciser/debugger that monitors and manipulates distributed applications across a variety of distributed systems.

Pricing for TIM is $365. The Mac version of TIM is scheduled to ship next month.

VXM Technologies can be reached at Box 9121, Kenmore Station, Boston, Mass. 02215; (617) 730-8490; (800) 627-5221. ☐

Animated, talking character created

If you just can't wait for the Knowledge Navigator and Mr. Bow Tie himself, then Bright Star Technology claims you can create the next best thing with the latest version of its HyperAnimator. The company used its RAVE driver, Version 1.5, to create this sample agent based on the Knowledge Navigator video. The character, Jonathan, is animated in synchronization with digitized speech or MacInTalk.

The new version, priced at $199, fixes several bugs, including incompatibilities with the Sound Manager, provides MultiFinder compatibility, supports all HyperCard visual effects, simplifies the process of copying face clip art and improves on the speech synchronization.

Bright Star Technology is at 14450 N.E. 29th Place, Suite 220, Bellevue, Wash. 98007; (206) 885-5446.

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We take the strain out of pulp products
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MEDICAL INSURANCE ENROLLMENT FORM
REQUEST FOR LEAVE OF SENSES
I need a life outside of pulp products.
SUBSIDIARY GROSS PROFITS, 1991

STACKWEEK/*ERIC ALDERMAN AND STEVE MICHEL*

Macworld Expo HyperCard highlights

■ PRODUCTS & NEWS

Plenty of interesting HyperCard-related products were shown at the recent Macworld Expo in San Francisco.

Super-duper card. "Anything can be a button" was the slogan proclaimed by the Silicon Beach folks at the show, referring to SuperCard's ability to associate a script with any object on a card, including draw and bit-mapped graphics. Silicon Beach shouted it over the company's loudspeaker, exhorted the huddled show goers ("Everybody now, Anything can be a button!") and sported the phrase on lapel buttons adorning their matching aqua-colored tropical shirts. Basking in the limelight of the program's official unveiling, Silicon Beach drew large crowds throughout the show. The developer sessions were full and lively, and Ben Calica, product manager, seemed happy as a clam.

At the press conference before the show, Apple's Jean-Louis Gassée said all sorts of wonderful things about SuperCard. It seems that the program will enjoy Apple's support and encouragement, even as the company continues to enhance HyperCard itself. One indication of this was Gassée's announcement that Apple and Silicon Beach are forming a HyperTalk/SuperTalk standardization committee. We hail this as a tremendous move toward keeping development environments from becoming too segmented and confused due to variations in language syntax and implementation.

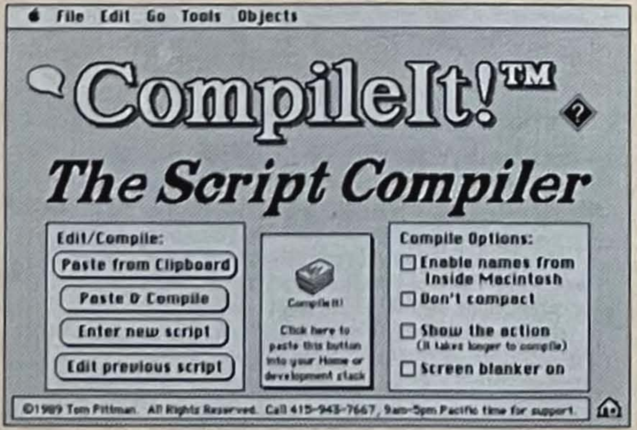
We continue to be very excited about SuperCard's potential as a development platform and expect it to be an enticing alternative to HyperCard for hypermedia and multimedia applications. Silicon Beach said the product will ship in the second quarter of this year. We'll follow its delivery schedule closely and will likely have some in-depth columns on it when it is released.

Debugging tool. One especially exciting and unexpected new product shown for the first time at the show was ICOM Simulations' HyperTMON. This product provides a complete HyperTalk debugging environment for the serious stack developer. A single XCMD pops little windoids over your stack that list the steps of a script as it executes and traces the values of specified local and global variables. You can specify break points in a script (stop when the variable theCount equals five, for example), or you can single step through a script.

Although the company said the product is several months away from release, it promises to be one of the most useful additions to a developer's tool library that we've seen.

Compiling tool. Heizer Software released a very interesting program called CompileIt! at the show. Written by Tom Pittman, this stack turns HyperTalk scripts into XCMDs. It even allows you access to the Mac's ROM calls, assuming you know enough of "Inside Macintosh" to get the syntax right. Initial impressions of this product are that it'll be really neat to be able to create XCMDs from scripts. However, the program is not in danger of breaking any speed records. Just as the developer said, not all scripts will greatly benefit in terms of performance by being compiled.

We will take a more detailed look at CompileIt! in a future column after we've had a chance to really put it to work.



☐ Enable names from Inside Macintosh
☐ Don't compact
☐ Show the action (It takes longer to compile)
☐ Screen blanker on

©1989 Tom Pittman. All Rights Reserved. Call 415-943-7667, 9am-5pm Pacific time for support.

Heizer Software's CompileIt! turns HyperTalk scripts into XCMDs and allows you to access the Mac's ROM calls.

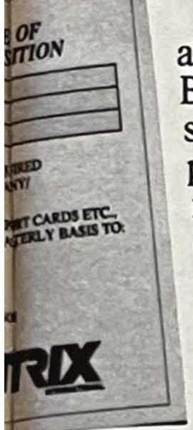
HyperSearch correction. Last week's column, which discussed HyperSearch from Discovery Systems, contained some statements that we feel demand some further clarification. We mentioned that HyperSearch does not return an ID "hit list" of cards on which searched-for text has been found and that a script must actually go to each one of the located cards. This is, in fact, only partly true. While it is accurate to say that the external does not return a hit list per se, it does have commands that allow you to build such a list fairly easily in HyperTalk without actually going to all of the cards themselves. Still, it would be more convenient if a hit list was provided automatically. Also, the number of cards found for a given search is, in fact, returned in a global variable. — E.A.

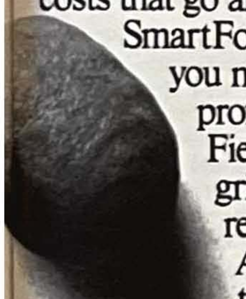
■ REFERENCE

Silicon Beach Software, 9770 Carroll Center Road, Suite J, San Diego, Calif. 92126; (619) 695-6956. ICOM Simulations, 648 S. Wheeling Road, Wheeling, Ill. 60090; (312) 520-4440. Heizer Software, 1941 Oak Park Blvd., Suite 30, Pleasant Hill, Calif. 94523; (415) 943-7667.

If you have any questions, comments, tips or other HyperCard-related information, write us at StackWEEK, c/o MacWEEK, 525 Brannan St., San Francisco, Calif. 94107. Electronic mail: MCI: STACKWEEK; AppleLink: D1507 (Steve) or D1577 (Eric).

Success takes many forms.





The road to success will always be paved in triplicate. But with new SmartForm™ software and Macintosh personal computers, it's no longer the tollway it once was.

The SmartForm concept is simple: you can't reduce the paperwork, so reduce the amount of paper. And the enormous printing, shipping and storage costs that go along with it.

SmartForm Designer™ includes all you need to whip out crisp, professional forms in a hurry.

Fields, lists, check boxes, grids, combs, lines, ovals, rectangles—everything.

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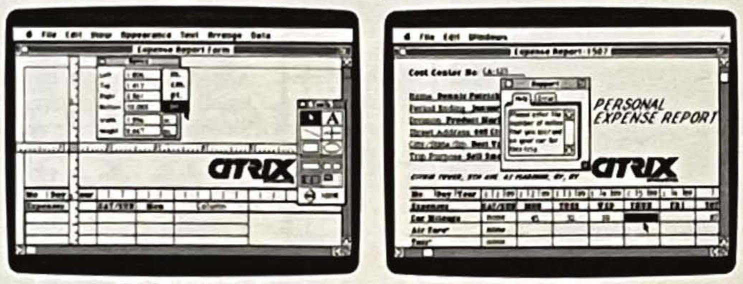

The SmartForm system lets you design professional-quality business forms on a Macintosh. Then lets anyone with a Macintosh fill them in.

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In fact, you can do everything on a Macintosh that a professional forms designer does on a drafting table. Only faster, easier and without paper cuts.

But you won't have to redraw the forms you're currently using. Because you can just scan them in.

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Then, SmartForm Assistant™ lets everyone else in your company fill in your forms on a Macintosh. Quickly and accurately. But it won't let anyone tamper with your designs.

With the SmartForm system, all your forms are stored on a Macintosh. You don't print a copy until you've filled one out.

That can save you a bundle in shipping and storage costs. And when you move to a more prestigious address, the price of success won't include thousands of dollars' worth of outdated forms.

Finally, SmartForm will integrate with your other Macintosh software. So you can easily transfer information from forms to spreadsheets or databases.

If all this sounds like great form to you, call 800-3CLARIS, ext. 500, for all the details. And learn how to turn a paper loss into a real gain.

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CD-ROM retrieval system spans multiple platforms

BY CLAIR WHITMER

SAN FRANCISCO — KnowledgeSet Corp. this month introduced a search-and-retrieval system for Mac CD-ROM developers that has even corporate giants like American Airlines looking up.

The Graphic Knowledge Retrieval System (KRS) is designed for both text and graphics stored on CD-ROM. The Mac version, incorporating several searching and cross-indexing methods, is intended specifically to store technical documentation.

With the inclusion of the appropriate search software, discs pressed in the High Sierra format can be searched on Mac, MS-DOS or Unix platforms.

American Airlines is evaluating the product for its Boeing 767 maintenance manual. Since the company uses Macs to produce the manuals and uses IBM PCs in its maintenance shops, Graphic KRS gives users in either area access to the same disc.

"I think of these things less as retail products than as corporate products," said Chris Bowman, marketing manager for KnowledgeSet. The search software sells for $75 a copy, but if a company is developing its own CD-ROM, the indexing and building system for an in-house project costs about $15,000, Bowman said. Graphic KRS for the Mac is scheduled to ship during the first quarter.

KnowledgeSet Corp. is located at 888 Villa St., Suite 500, Mountain View, Calif. 94041; (415) 968-9888. ☐

Layered announces Insight upgrade, new mid-range accounting package

BY ERIC J. ADAMS

BOSTON — Layered Inc., a major player in the Mac accounting market, has announced:

▸ An upgrade for the accounts receivable module of its Insight Expert Accounting Series.

▸ A new mid-range accounting package due in March.

The Version 2.20 upgrade, due next month, will give users of Insight's accounts receivable module the ability to selectively import data from and export it to "virtually all major Macintosh applications," including Microsoft Excel and Works, ACIUS' 4th Dimension, Blyth's Omnis 3 Plus, and Claris' FileMaker II, according to Bill Lowry, president of Layered.

Layered will include the import/export feature in its other modules later this year. The 2.20 upgrade also includes improvements to Insight's printing manager and full compatibility with big screens and color monitors, the company said. Current users of Insight Expert Accounts Receivable will be able to upgrade for about $40, Lowry said. The price of the module will remain $695.

Layered is also readying atOnce!, a $395 accounting package designed for small- to mid-size companies. Set for release in March, the new program integrates four accounting modules: general ledger, accounts receivable, accounts payable and payroll. All can be opened simultaneously with easy data transfer.

Layered has licensed Symmetry Corp.'s HyperEngine to give atOnce! users on-line access to a HyperCard tutorial stack.

Layered is located at 529 Main St., Boston, Mass. 02129; (617) 242-7700; (800) 622-4436. ☐

New camera gives instant overheads

SUNNYVALE, Calif. — Presentation Technologies Inc. recently showed a new camera option for its Montage Film Recorder to produce instant color transparency overheads for presentations or previews.

The $895 Montage TC1 Color Transparency Camera will be available by the end of this month.

The overhead transparencies are created on Polaroid overhead transparency film at the Pocket Overhead 3.25-by-4.25-inch size. Included with the camera is an overhead adapter to project the Pocket Overheads from a standard overhead projector.

The transparency camera is interchangeable with the 35mm camera used to create slides.

Presentation Technologies Inc. is located at 743 N. Pastoria Drive, Sunnyvale, Calif. 94086; (408) 749-1959. ☐

Timeslips III offers professionals an edge when time is money

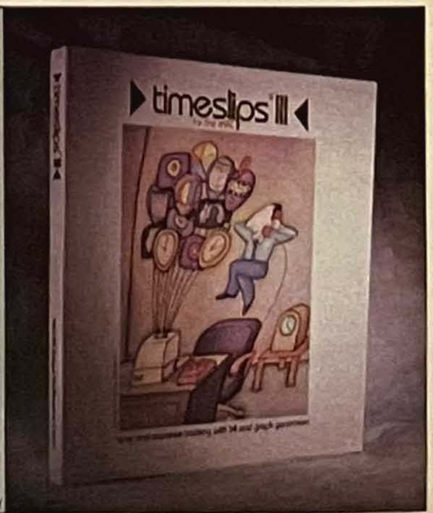
Maybe you can't work any faster, but with the new version of Timeslips from North Edge Software you may be able to get paid faster.

Timeslips III is a time and billing system for professionals who are paid for the time they put in, such as lawyers, consultants and free-lancers.

The new version, which recently began shipping, boasts improved speed, choice of fonts for printed bills, a faster entry method called Batch Entry for the Timer desk accessory portion of the package, and support for international money, date and time formats.

The program is priced at $199.95 until April 1, when the price will go up to $299.95.

North Edge Software Corp. is located at 239 Western Ave., Essex, Mass. 01929; (508) 768-6100.



MICHAEL JAY

PerfecTEK ships coprocessor

Mac II card offers networking links

BY HENRY NORR

MILPITAS, Calif. — With its Mac/DOS II coprocessor card for the Mac II out the door, PerfecTEK Corp. is set to make its pitch to federal and corporate buyers who like the Mac but need MS-DOS compatibility and networking capabilities.

The $1,595 NuBus board, which includes a 12-MHz 80286 chip and 1 Mbyte of RAM, was scheduled for release last August. It was delayed pending approval from the Federal Communications Commission, but the Milpitas, Calif., company last month won Class A approval from the FCC and began shipping the board.

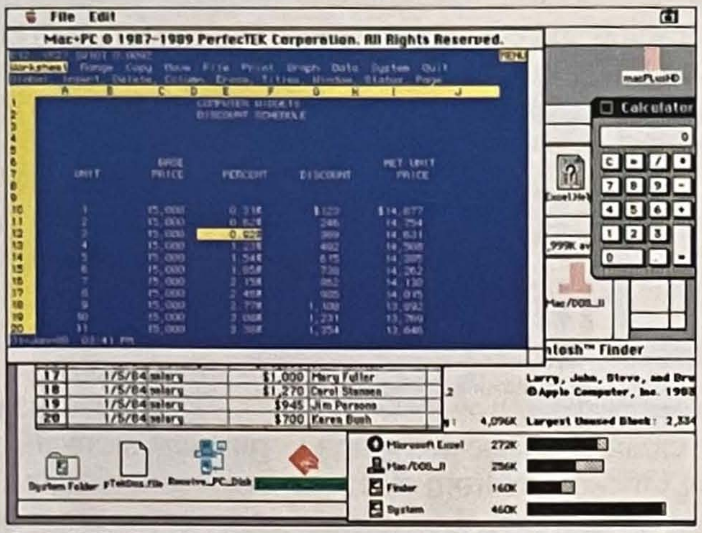
PerfecTEK is challenging two well-established contenders in the PC compatibility market for the Mac, AST Research Inc., which markets the Mac286 coprocessor boards, and Insignia Solutions, developer of the SoftPC software emulation package. Sam Satya, PerfecTEK president, said his product offers a package of features the other contenders can't match:

▸ A built-in IBM PC-compatible communications port that allows the Mac to be connected easily to PC networks.

▸ A parallel port supporting popular PC printers.

▸ Full support for Apple's new SuperDrive, allowing users to open PC files directly from the SuperDrive. The board also supports PC-compatible drives from Dayna Communications and Peripheral Land Inc.

▸ Scroll bars; a selection of eight fonts, each in seven sizes, in the PC window; and WYSIWYG bit-mapped printing.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4,096K Largest Unused Block: 2,33
Microsoft Excel 272K
Mac/DOS_II 256K
Finder 160K
System 460K
System Folder
Receive_PC_Disk

17	1/5/84 salary	$1,000	Mary Fuller
18	1/5/84 salary	$1,270	Carol Stanson
19	1/5/84 salary	$945	Jim Persons
20	1/5/84 salary	$700	Karen Bush

PerfecTEK's Mac/DOS II coprocessor runs under MultiFinder in a 1-Mbyte Macintosh and fills only one NuBus slot.

While AST's Mac286 fills two NuBus slots, the Mac/DOS II takes only one. And PerfecTEK's Mac/DOS II runs comfortably under MultiFinder in a 1-Mbyte Mac, Satya said, while AST's solution requires 2 Mbytes, and Insignia's SoftPC needs at least 4 Mbytes for MultiFinder use.

PerfecTEK is also working on an expansion chassis that will allow Mac/DOS II users to install LAN adapter cards for Novell, Token-Ring and other popular PC networking systems.

The company this month announced a strategic alliance with Data Sys Inc. of Hampton, Va., and Washington, D.C., a systems integrator and networking consultant specializing in the federal market. "PerfecTEK products provide the the necessary features and cost performance criteria desired by federal government users," said Gary Blankenbeckler, president of Data Sys, who added that he conducted an extensive evaluation of Mac-to-PC connectivity products under a government assignment.

PerfecTEK is located at 1455 McCarthy Blvd., Milpitas, Calif. 95035; (408) 263-7757. ☐

Screen-sharing software due from down under

BY HENRY NORR

SAN FRANCISCO — A software developer from down under used Apple Australia's booth at this month's Macworld Expo to show off Sideband, a new program that allows Mac users to share one another's computers over an AppleTalk network or remotely via modem.

Nexus Development of Queensland, Australia, said its new product is scheduled for U.S. distribution next month.

Sideband, which is controlled through a desk accessory, allows users with proper authorization to see the screen of a colleague's Mac and to control all its functions remotely. The program is designed to facilitate training, tech support and troubleshooting, and collaborative development and editing of documents.

The new product could mean significant competition for Farallon Computing Inc.'s Timbuktu and Timbuktu Remote, the only current entrant in the screen-sharing field. While Timbuktu takes over the entire monitor of the guest machine to display the screen of the host Mac, Sideband puts the host screen in a window, allowing the guest to work on local applications and see the remote screen at the same time.

While Timbuktu has a list price of $99 per node, and the remote version costs $295 per node, Sideband will sell for $149 for a two-node package with remote capabilities built in.

Future versions of the Australian product will add a cut-and-paste function and support for viewing multiple machines simultaneously in separate windows. The initial release of Sideband, however, will not include remote file transfer, a capability that is incorporated into Timbuktu Remote.

According to Nexus, Sideband works across most hardware and software bridges and remote servers for AppleTalk networks.

John Scott, a spokesman for Nexus Development, said the company is currently negotiating with several possible American distributors. Demonstration kits are available for $25.

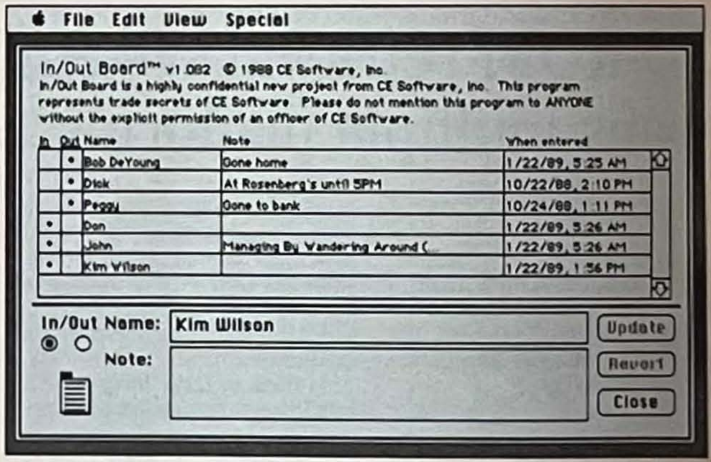
Nexus Development is located at 19 Staple St., Seventeen Mile Rocks, Queensland, Australia 4073. ☐

In/Out Board keeps track of whereabouts

BY HENRY NORR

SAN FRANCISCO — "Where the hell is George?" CE Software said customers have convinced it that that question is asked more often than any other in busy corporate offices, and the company is working on a new product that will make it easy to find the answer.

Currently code-named In/Out Board, the server-based product allows users to sign in or out and enter their whereabouts, return time, and other comments on a screen easily accessible from any networked machine. According to Don Brown, director of programming at the West Des Moines, Iowa, company, the product is "designed for speed" and can be called up with a single "hot key."



In/Out Board™ v1.0β2 © 1988 CE Software, Inc.
In/Out Board is a highly confidential new project from CE Software, Inc. This program represents trade secrets of CE Software. Please do not mention this program to ANYONE without the explicit permission of an officer of CE Software.

In	Out	Name	Note	When entered
	•	Bob DeYoung	Gone home	1/22/89, 5:25 AM
	•	Dick	At Rosenberg's until 5PM	10/22/88, 2:10 PM
	•	Peggy	Gone to bank	10/24/88, 1:11 PM
•		Don		1/22/89, 5:26 AM
•		John	Managing By Wandering Around (...	1/22/89, 5:26 AM
•		Kim Wilson		1/22/89, 1:56 PM

In/Out Name: Kim Wilson
● ○ Note:

With CE Software's forthcoming networking product, users can sign in or out of the office with just a few keystrokes.

The product, which is due to ship this spring, will provide several access levels; a notification feature that will inform users when a colleague signs in; software for AppleTalk-equipped IBM PCs; options such as logging and automatic signing in and out; support for multiple departmental in/out boards; and optional logging of information entered on the boards.

CE Software is located at 1854 Fuller Road, P.O. Box 65580, West Des Moines, Iowa 50265; (515) 224-1995. ☐

Prototyper 2.0 generates C code from on-screen mock-ups

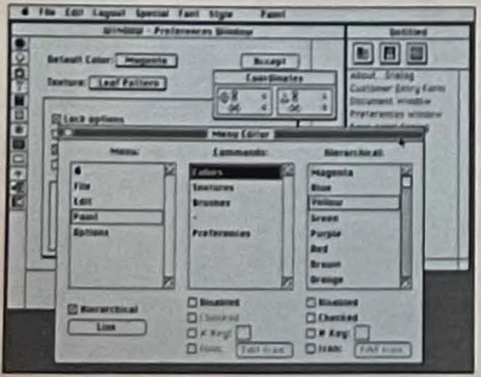
BY JONATHAN PERROW

PORTLAND, Ore. — Smethers-Barnes has programmed a new version of Prototyper, a tool that helps programmers to program. The software is now capable of generating C code directly from its on-screen mock-ups.

Prototyper uses an icon-based MacDraw-like environment to assist in application interface design and development.

The new version, Prototyper 2.0, will double in price, from $125 to $249, and is expected to ship this week. Version 2.0 adds Lightspeed C and MPW C (2.0 and 3.0) code-generation capabilities; pop-up and hierarchical menu support; enhanced screen-layout tools such as grouping, aligning and locking, and on-screen grids; import and export of windows; and large monitor support.

Smethers-Barnes can be reached at P.O. Box 639, Portland, Ore. 97207; (503) 274-2800. ☐



Version 2.0 adds import/export capability, allowing developers to share windows among prototypes.

Truevision expands NuVista series

BY JONATHAN PERROW

INDIANAPOLIS — Truevision Inc. has announced additions to its NuVista series of video products for the Mac II and IIx.

The Indianapolis company's latest offerings include:

▸ NuVista HR, a high-resolution, eight-bit color display card for the Mac II and Mac IIx.

▸ A $2,995 1-Mbyte version of its 32-bit NuVista video capture and display board, previously offered in 2-Mbyte and 4-Mbyte versions.

▸ A 2-Mbyte, 4-Mbyte or 8-Mbyte NuVMX Memory Expansion Module for the NuVista series, which, when combined with the memory on any NuVista board, provides up to 12 Mbytes of video memory.

With a Texas Instruments 34010 graphics coprocessor and hardware panning, the NuVista HR offers the "ideal environment for CAD, graphic design, scientific visualization and medical imaging," said Carl Calabria, director of engineering at Truevision.

The NuVista HR has a resolution of 1,280 pixels by 960 pixels but does not offer video capture capability or 24-bit color. The board is designed to work with a variety of high-resolution monitors, said the company.

Priced at $3,995 with a 2-Mbyte frame buffer, and $5,995 for a 4-Mbyte version, the board is expected to ship in March.

Truevision is at 7351 Shadeland Station, Suite 100, Indianapolis, Ind. 46256; (317) 841-0332. ☐

WHEN YOUR PEOPLE HAVE SO MANY DIFFERENT COMPUTERS TO CHOOSE FROM, WHERE DO YOU DRAW THE LINE?

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Editorial

Sculley delivers state-of-the-art speech

Until last week, Apple had talked a great deal about interactive multimedia without really conveying what it is and what it means for today's computer users. Then, at Macworld Expo, John Sculley gave the speech of his life.

The speech sounded at first like the familiar Sculley formula of pie-in-the-sky futurism adorned with slickly produced video bites. But it soon became clear that this time there was a difference. For one thing, this presentation was live, featuring not canned video clips, but digitized frames captured and manipulated on the fly. Sculley was out on the edge with a program that could crash at any moment. The Apple CEO was working without a net.

The content of the speech cleverly interwove two fundamental themes, reviewing the always entertaining history of the Macintosh while setting a direction for the important new technology being demonstrated.

By nesting the historical review within the framework of a future technology, the speech was playfully self-referential, like a J.S. Bach canon or a Vladimir Nabokov novel. There were familiar images like the 1984 commercial, the original Mac rollout and a "Star Trek" encounter with a present-day Mac. There were candid replays of Apple failures, such as the Macintosh office, and heartfelt homage to fallen Apple heroes Steve Jobs and Bill Gates. There was even a self-deprecating reference to the Knowledge Navigator, when a live Jean-Louis Gassée stood in for the futuristic agent portrayed in that oft-seen video.

> *The Apple CEO was working without a net.*

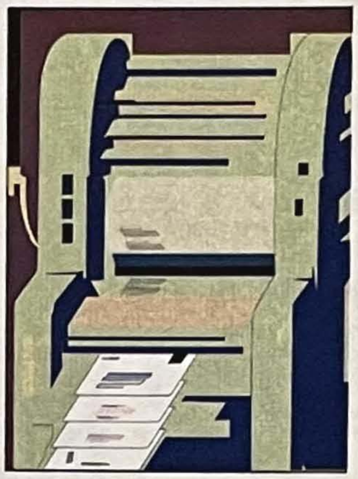
Of course, it's one thing to give a ringing endorsement of multimedia and quite another to develop it as an important new market. Indeed, there remain key technical barriers to the full implementation of video processing and display on the Mac platform. Many of the basic building blocks of multimedia — tools equivalent to desktop publishing's PostScript and LaserWriter — have yet to be developed. Apple's own HyperTV system, the engine driving Sculley's presentation, is not yet available to outside developers.

Other tools are here today, however, and were exhibited at Macworld Expo. And while the critical mass of technology and knowledge that launched desktop publishing has not yet gathered for multimedia, it is coming quickly.

In this issue, MacWEEK's first monthly GA section takes an in-depth look at the current state of multimedia technology. Even in this early stage, the creative energies being applied in dozens of areas, from business presentations and training, entertainment, education, and scientific simulation, are truly impressive. There is every reason to believe that Apple can pull together the remaining pieces to make the Mac into a knowledge delivery system transcending the limitations of today's individual media.

The original innovation of the Mac was to bring together graphics and computing. By compounding those resources with animation, sound, video and true interactivity, multimedia has the potential to fulfill Apple's vision of empowering individuals to greater accomplishment.

LETTERS



CD-ROM hints from experts

Thanks for your Dec. 13, 1988, article "What's holding back CD-ROM" by Steve Rosenthal.

As the Mac world progresses into CD-ROM technology, developers will discover the same obstacles that have been appearing on the PC side for the past three years. Meridian Data has learned the following by working with more than 150 CD-ROM developers:

1. Do not do a test disk. Doing a test disk is a poor and frustrating substitute for accurately simulating the CD-ROM image prior to premastering. Instead, use a full-featured development and simulation system that allows you to test your retrieval software and data running at the CD-ROM access speed of your intended CD-ROM drive.

2. Select a development system that combines several input options: i.e., SCSI interface for hard disk as well as standard nine-track magnetic tape. Eighty-five percent of all data that will be placed on CD-ROM currently exists on a mainframe or minicomputer. Magnetic tape is also the preferred media of most mastering facilities. Don't forget that a full 600-Mbyte CD-ROM image requires five full reels written at 6,250 bpi.

3. The development system should have a hard disk subsystem that is two to four times the size of the CD-ROM image. This means that your development system should have 1.2 to 2.4 Gbytes to handle a 600-Mbyte image. This greatly facilitates the testing of alternative retrieval software and indexing schemes.

4. Make sure the development system can generate both native mode HFS (hierarchical file system) and High Sierra formats. This protects the developer as more Mac software is converted to use Apple's High Sierra drivers.

5. Obtain development software that integrates partitioning and file manipulation functions. The ideal system should have an extensive command set to handle file directory listings, tape utilities, creation of partitions and file copying.

As more Mac developers test commercial external commands (or write their own) for their HyperCard applications, they need to understand the capacity and simulation requirements to produce an acceptable CD-ROM. Choosing the right development environment is critical.

Matthew R. Leek
sales engineer
Meridian Data Inc.
Capitola, Calif.

Happy with Jasmine

I am writing in response to a note about Jasmine hard drives in MacInTouch (Dec. 6, 1988). With the current changes at Jasmine, I am sure that there will be reports of equipment problems as they are now topical. With lawsuits in progress, there is also reason to be concerned about the source of such reports. I am writing this letter in an attempt to provide a balance.

Our group has used four Jasmine DirectDrive 50s for more than a year, and they have been 100 percent reliable. They are fast, quiet drives. They were supplied with a large selection of software, some of which have proven very useful. More important, the manuals are well-written, and even our least-experienced computer users have had few problems. Such confusing topics as SCSI termination, device numbering and backup strategies are well-covered.

Last week I received a Jasmine DirectDrive 45 for my own use. With some concern, I unpacked the drive. This drive also functioned per-

See LETTERS, Page 22

MAC SOAPBOX/*Frank Catalano*

Seeing new worlds via the Mac

GORDON STUDER

The next time you vist Disneyland, you'll be visiting the future of the Macintosh.

Surprised? You shouldn't be. We've been misled about what the Mac can really do. First, we were told, "Personal computers are a great way to play games!" That became "Johnny's intellectual growth will be stunted without a computer." Most recently, it's, "Personal computers are the One True Path to office productivity."

What these marketing slogans conveniently ignore is that we already have ways to play games, educate children and be productive at the office. The computer is simply another good tool for these functions. But there is a function for which the computer has little, or no, competition.

Cue Disneyland.

The specialty at California's Disneyland, as well as at its sister parks in Florida and Japan, is the creation of artificial environments. Attention to detail is crucial to the attractions and surroundings; each section of Disneyland is carefully structured so that everything — down to the trash cans, shrubbery sculpting and uniforms of the park staff — contributes to the illusion.

That's the new niche for the Macintosh — not as a financial, classroom or competition simulator, but as an environment simulator.

Environment simulation is an entirely new class of application, designed to give the computer user an environment to explore. Some software publishers are already running this gauntlet. Manhole, published by Activision, is a good example: In nearly 4 Mbytes of HyperCard stacks, you're encouraged to explore a fantasy environment, complete with animated graphics and sounds. There is no "correct" way to explore this environment; it's just a delight to do so, experiencing new things you may have missed by taking a different HyperCard turn.

And like Disneyland, programs that follow in the footsteps of Manhole can captivate exploration-minded kids and adults because the fun is in finding out what's behind that door, or in that drawer or behind that walrus.

Imagine: In the near term, we'll explore environments like Manhole on large-screen televisions with stereo sound and full color. In the long term, we'll use holographic pro-

See SOAPBOX, Page 22

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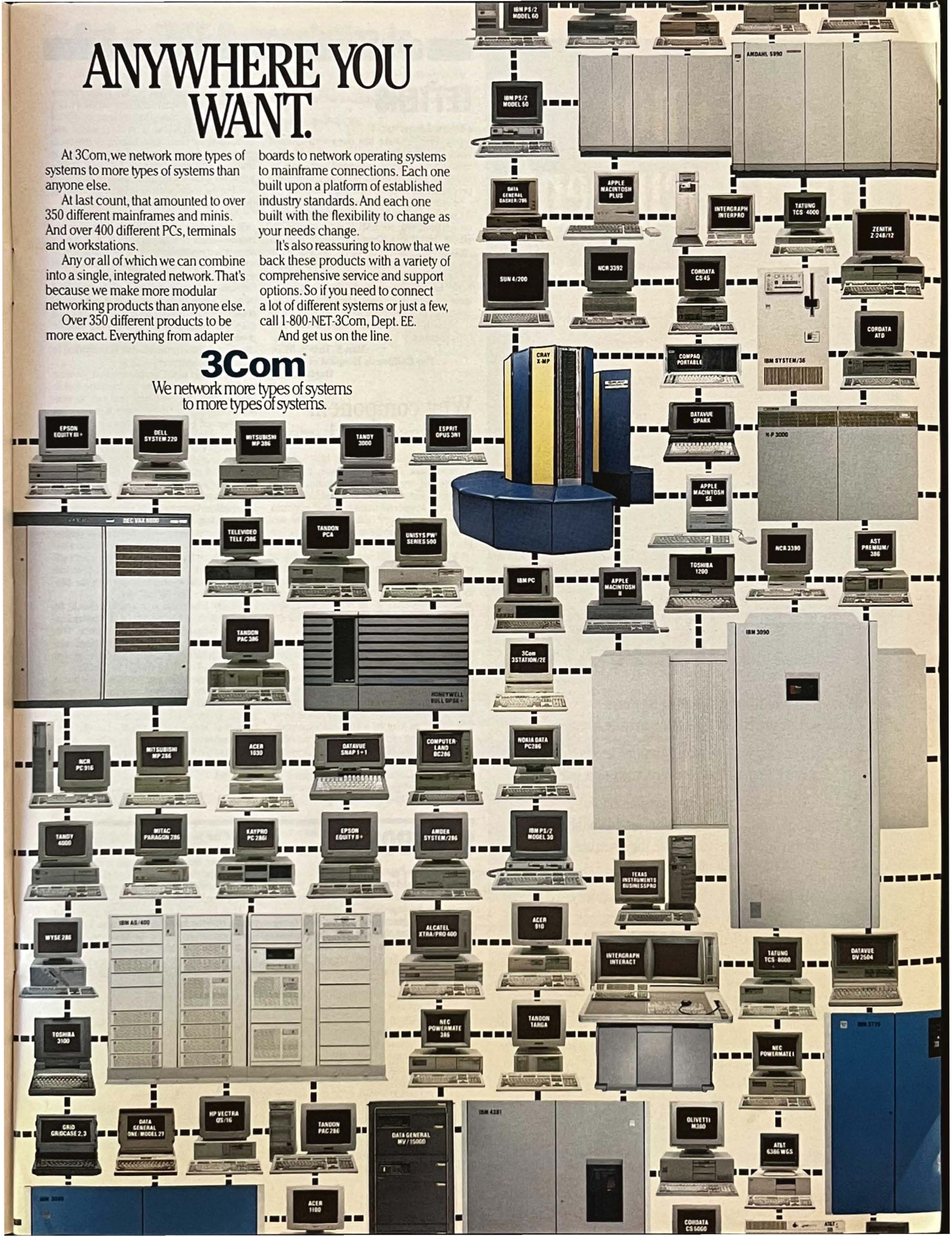

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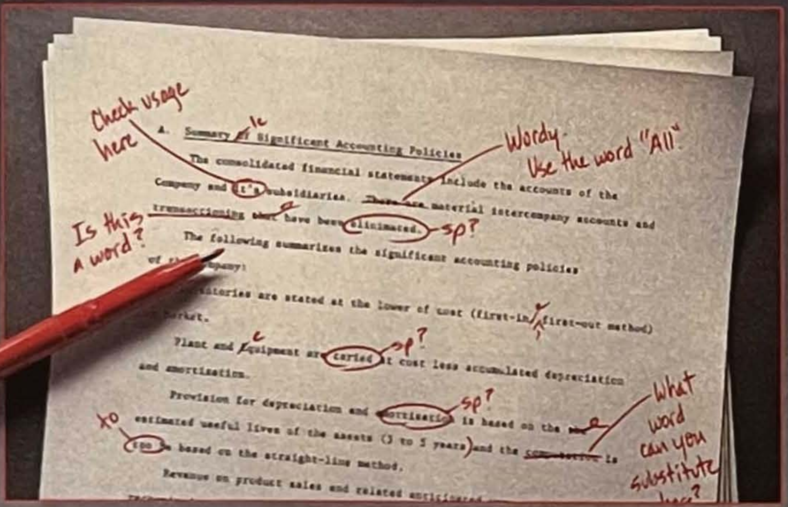

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LETTERS

Continued from Page 20

fectly. The software has been well-updated since our last drives were purchased. The manuals have been expanded, and now an excellent backup utility and hard disk tools program (Redux and S.U.M.) are included.

I am highly satisfied with the equipment. As you know, Guy Kawasaki demonstrates 4D on a DirectDrive 50. BMUG recommends the DD50. MacWEEK should certainly pass on reports of equipment problems, but I'd hate to see rumors or partisan reports hurt a company that makes quality hardware for the Mac. I hope that Jasmine weathers the storm, maintains the quality we have enjoyed and continues to develop new equipment.

My only connection to Jasmine is as a satisfied customer.

Alan S. Brody, M.D.
The Children's Hospital of Buffalo
Buffalo, N.Y.

Why component software isn't here

Regarding the Nov. 29, 1988, Mac Soapbox by Peter Black, I've written software for several different organizations, including Prime Computer. I'm not about to shout hallelujahs about the wonderful managers that populate the software industry (although I've been fortunate to work for some really great ones), but Black's statements that "management wants to protect its fat margins, even at the expense of corporate myocardial infarction" and that "product managers don't want to lose any more of what little control they have over the programming process" as reasons for failure to "build software with standard, interchangeable parts" entirely miss the mark.

Not that Black's statements are incorrect on their own standing — I'm not about to tackle those commonly heard assessments of corporate management — but they have nothing to do with the failure he laments. Managers trying to protect their margins and maintain control rarely care how programmers achieve their tasks, as long as it isn't too expensive, time-consuming or risky. Generally, corporate management and product managers pressure programmers to "stop reinventing the wheel" and reuse as much existing software as possible and to create reusable software when they must write from scratch.

Part of the problem is that programmers often feel most comfortable and satisfied when the bulk of the code that makes up one of their own applications is written, tested and debugged by their own hands. A practical example of the usefulness of this approach is that when anything strange happens, a programmer who thoroughly understands most or all of the code involved is far more likely to quickly narrow down the problem area.

Another part of the problem is that so-called reusable code written in the form of subroutines often fails to perform up to expectations when examined for inclusion in new software products. In fact, managers who desire to ship the highest-quality software to their user base are, in today's environment, best advised to do as much design and coding in-house as possible and to thoroughly test everything that goes into their product. Yet testing outside products thoroughly often requires an understanding of those products that is equivalent to the ability to design and code it.

A third part of the problem is that software engineers do not yet have an adequate tool to express "generic concepts" that can be connected together to form not only a product but an optimized product with most or all excess baggage potentially provided for by the generic concepts removed. Object-oriented languages, including C++ and Smalltalk, are an important first step in the right direction. However, they are indeed only first steps. If you attempted to break down all the actions of, say, a spreadsheet program into proper objects and their actions, and then tried to re-create the spreadsheet program using the current crop of object-oriented compilers, it would be too slow and too large for use. Computer-assisted optimization exists but is still somewhat primitive and rarely capable of interacting with the programmer in an "intelligent" way.

Finally, Black and your readers should be aware that in fact some levels of standardization and reusability already are in place. Witness the Macintosh OS and its standard windows, QuickDraw and user interface design guidelines, all of which should be familiar.

In summary, managers certainly are not to blame for any perceived resistance to standardization of software parts, at least not as a group; programmers might deserve some amount of blame; but mostly the fact that software engineering is still in its infancy, or, at most, its "terrible 2s," deserves the blame for the fact that programmers must often reinvent the wheel.

James Craig Burley
Ashland, Mass.

SOAPBOX

Continued from Page 20

jections, surround-sound and smell.

Yes, creating full-fledged artificial environments can be expensive. In annual pilgrimages to Disneyland during the past three decades, I've seen planners work hard to keep the quality of the illusion high and ahead of reality. "Flight to the Moon" became "Mission to Mars," and that, apparently, is again targeted for revision.

But artificial environments on the personal computer don't cost as much per experience, and they are much more portable and easily changed. That, in part, is probably why Disneyland now is using Macintoshes and other PCs for designing and controlling attractions and as part of the illusion.

One attraction, "Star Tours," is built around a flight simulator keyed to a film produced by George Lucas' Lucasfilms. Disney officials said at the ride's introduction that, given a new film, the simulator could be reprogrammed within 48 hours. It's my guess that we'll see more of this modular approach in attraction design to keep Disney's artificial environments current, without the huge expense of tearing down a ride and creating a new one.

In effect, Disney created the artificial environment and the Macintosh copied it, and now Disney is using such computer enhancements to reinforce its own position.

That benefits visitors to the park who want a realistic artificial experience. For Macintosh users who desire the same experience, things are a bit trickier: If environment simulation on the Macintosh is to grow out of its infancy, it needs a champion. Apple's dreams of interactive multimedia seem aimed at the business market, where it will become yet another productivity tool. If Apple doesn't pursue environment simulation, the way is open for small, aggressive companies to take the lead.

If they do, it's likely that in the near future, PC users won't have to travel to Anaheim, Calif.; Orlando, Fla.; or Tokyo to experience those artificial environments.

All they'll need to do is boot the Disneyland in their Macs. □

Frank Catalano is a computer-industry observer, broadcaster, and science-fiction and technology issues writer.

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- ☐ 07. Government: Non-Federal
- ☐ 08. Manufacturing
- ☐ 09. Education
- ☐ 10. Finance: Banking, Accounting, Insurance, Real Estate
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- ☐ 03. 50-99
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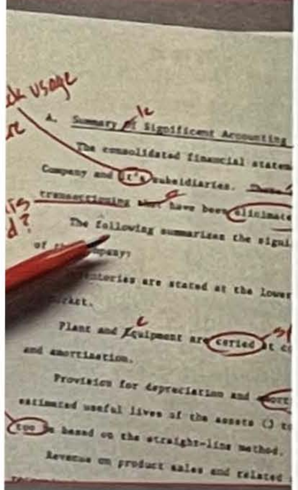

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ed for revision.

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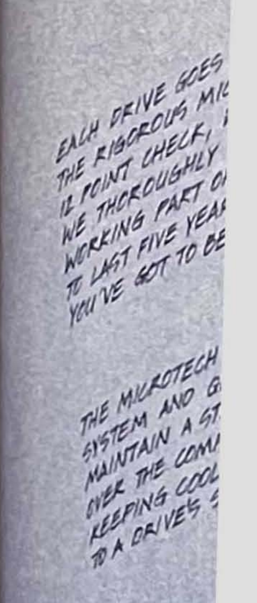

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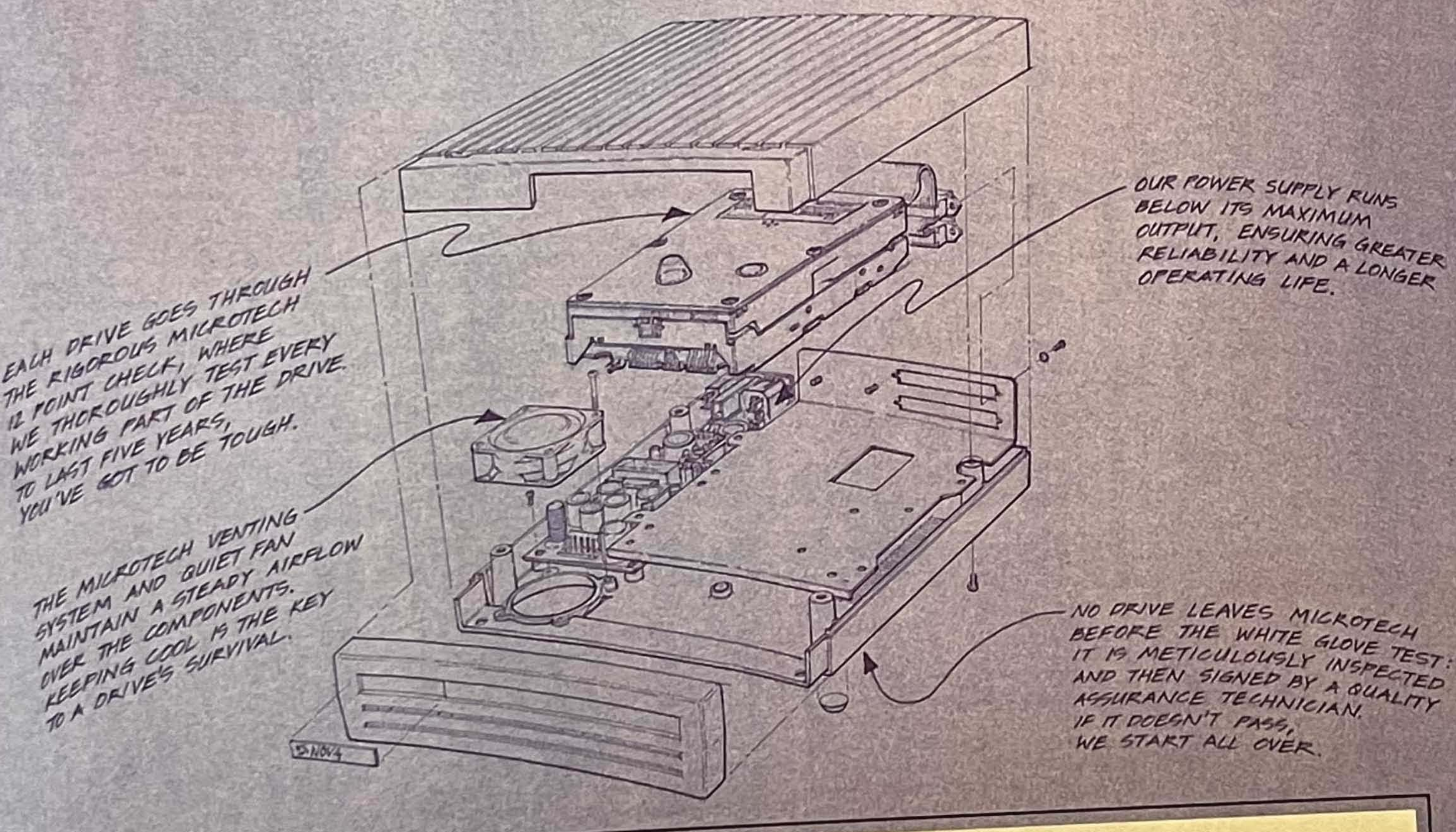
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Turning an art into a science: Expert tax programs

Expert systems are speeding things up at tax time

KENNETH CHEN

Gary Ribar, senior manager of Peat Marwick's audit support department, said that until Loan Probe came along, auditing loans was an art mastered only through long years of experience.

BY JIRI WEISS

ST. LOUIS — As usual, Peat Marwick Main & Co.'s auditors are carrying Macs with them to the banks they audit this winter.

But there's a new twist. Taking the auditors step by step through evaluating the soundness of each loan is Loan Probe, an expert system that the company is using worldwide for the first time this auditing season.

Expert systems are programs that attempt to give users the benefits of an expert's knowledge and experience. The systems use logic and rules of inference to draw conclusions from knowledge entered into the computer in the form of rules of thumb common to everyday problem solving.

The idea of an expert at your fingertips might conjure up images of cinematic heroes like R2D2 and HAL, but the reality is far less glamorous, according to Stephen Appelbaum, a senior manager with Peat Marwick's St. Louis office who has worked with Loan Probe since it was field tested in 1987. "It's not like what you see on television. It doesn't talk to you."

The process of evaluating loans to determine whether a bank has enough reserve to cover its losses is a critical part of the Big Eight company's business. Like a real-live expert, Loan Probe prompts auditors for information and arrives at its own conclusions. But that doesn't mean that the auditors can just plug in a few numbers, put their feet up and leave the work to the computer.

The program often asks the auditors to enter their own opinions, and it always leaves them the option of overriding any program-generated conclusion. Peat Marwick management makes it clear to auditors, in fact, that it is they and not the computer who are responsible for making sure that the program's reasoning is correct.

Loan Probe is not even appreciably faster than auditing loans manually, according to auditors who use it. But it is, said Appelbaum, "a good check list that makes sure that nothing [in the auditing procedure] slips through the cracks."

Loan Probe also makes auditing more focused, according to Joe Hopkins, audit manager at the St. Louis office. "It only asks you for the information you need to know," he said, "so you don't waste your time looking at irrelevant information. It's an excellent tutorial on how to perform a loan evaluation. After 20 or 30 of them, the auditors using this should be able to throw the computer away."

Peat Marwick is not the only financial institution developing expert systems. A study by another Big Eight firm, Coopers and Lybrand, showed that 42 percent of financial institutions, including insurance companies and banks, were either using or developing expert systems in 1987.

But Loan Probe, at a whopping 9,000 rules and 8.5 Mbytes, is certainly one of the largest expert systems in use. "I haven't heard of any other major application stories like that on the Mac," said Sara Spang, editor in chief of the Spang Robinson Report on AI, based in Menlo Park, Calif.

In general, according to Gary Ribar, senior manager of Peat Marwick's audit support department and head of Loan Probe's development team, expert systems are useful where a problem is ill-defined, and many factors affect a decision. Until Loan Probe came along, auditing loans was an art mastered only through long years of experience, according to Ribar, who added that the system was developed because experts in the company were being asked to review an ever-growing number of loan audits.

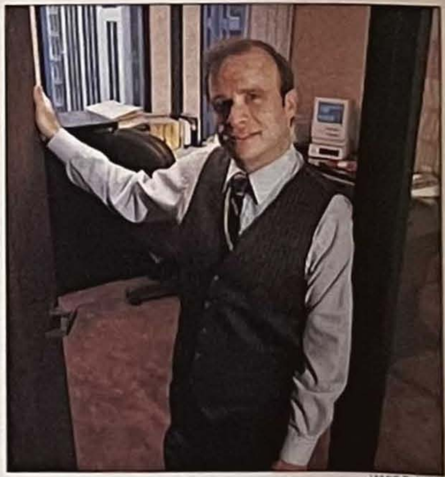
There was an even more important reason for the system's development. In an increasingly complex banking world, Ribar said, Peat Marwick wanted to make the review process more uniform by turning the subjective expertise into procedures that others could follow. "Losses are easy to call," Ribar said. "They hit you in the face." But, he said, banks have large number of questionable loans, the soundness of which depend on a wide variety of factors, some very specific to a particular industry.

Experienced auditors can sort the substandard loans into much finer categories than can novices, allowing a bank's management to take corrective action and set aside adequate reserves in time.

"The classification is a very subjective judgment, which is why many people said this

See TAXES, Page 26

Forms-based taxware is in the Mac's future



JAMIE TANAKA

San Francisco CPA Mark Jansen prefers the Mac over service bureaus for client forms.

BY SCOTT BEAMER

SAN FRANCISCO — Traditionally, accountants are a cautious lot, so it's probably no surprise that tax preparers are only now beginning to recognize the advantages of the Macintosh. It's hard to blame them, however; they've had few software packages available for their specialized needs.

The situation has shown marked improvement. For 1988 tax returns, for example, SoftView of Camarillo, Calif., Heizer Software of Pleasant Hill, Calif., and CompuCraft of Highlands Ranch, Colo., have released a range of tax forms suitable for all but the largest businesses.

The factor determining whether a company is too large to use such programs hinges on the weakest link remaining in tax preparation software for the Mac: a dearth of tax forms for individual states. Mac versions of personal tax returns are available for only seven states, so if a company does business in more than one or two states, it probably won't find Mac tax preparation software particularly convenient.

Still, tax preparation professionals are taking to the Mac. One reason is the Mac's ability to display a fairly accurate representation of the tax form. Symbolic of this acceptance is the shift in policy by Arthur Young & Co., among the world's largest accounting firms. According to Jay Levine, director of tax technology for Arthur Young: "Strategically, the Macintosh is our direction. Forms-based tax processing is clearly the future."

MARIO RUIZ

Jay Levine, director of tax technology for Arthur Young: "Forms-based tax processing is clearly the future."

For this tax season, Arthur Young has bought a large but undisclosed number of MacInTaxes and TaxView Planners from SoftView. While the company won't use the Mac to prepare tax returns for its largest clients — those returns being too large and complex for any microcomputer — it plans to use the Mac for as many clients as is practical this year. According to Levine, that figure will likely be in the thousands.

Many preparers still use systems based on the input-sheet model. Enter some data, click a few boxes, press a button and you've generated the forms.

But according to Levine, this overly automated process reduces tax preparers to data entry clerks. Because the tax preparers do not see the actual tax form, they miss the creative catalyst that encourages strategic planning. "You get better people," Levine said, with a forms-based system.

Professional tax preparers using the Mac also have to work around programs intended primarily for personal returns. Currently, software vendors offer business

Continued on next page

Continued from previous page

forms only as an option to its packages for the individual.

The ideal package for professional preparers would include features already available for the IBM PC and compatibles, including the ability to shift between a form-based screen and an input-sheet screen; a client mailing list with mail merge capabilities, client letters and personalized summaries for each client; database capabilities that will allow searches and summaries across customer files; batch printing; and, of course, complete form sets for both state and federal returns.

Despite the head start of MS-DOS programs, tax preparer Daniel Rosen of Skokie, Ill., has been running SoftView's MacInTax for several years, using it to turn out 350 returns last year. With the increased number of business forms available, Rosen said that he expects to prepare an even greater number of forms with MacInTax this year.

MacInTax is the only stand-alone tax preparation package for the Mac; the others are spreadsheet templates. Most individual practitioners use service bureaus to print out client forms. But CPA Mark Jansen, a practitioner in San Francisco, is one of a growing new breed who uses the Mac for that purpose. "Service bureaus are never totally right," said Jansen. When the IRS introduces a new form or new regulations, the service bureau "may come up with a solution I don't like and can't change. Though I'm not a computer nerd, I can easily change the way some forms are handled or tie my own supporting work sheets into the templates."

Most templates use Microsoft Excel as the preparation engine. That fact, while longstanding, opens up much room for improvement. For example, templates based on Excel are restrained by the program's inability to change row height or fonts. This first feature becomes particularly important when printing forms that vary from the standard 1040.

It's probable the situation will change. For one, Excel is likely to face two new challengers, Ashton-Tate's Full Impact, and Informix's WingZ, both of which will almost certainly offer tax templates next season. Panorama, ProVue's successor to OverVue, is also known to be working on a set of tax templates.

In response, Microsoft is soon expected to release Version 2.0 of Excel — which promises to offer the superior graphics qualities for on-screen forms that are touted by the other vendors. The end result is likely to be more Mac solutions to a taxing problem. ☐

Tax prep products abound

Mac users looking for tax preparation help have a number of vendors from which to choose. Among them are:

MacInTax. SoftView's MacInTax will be the only stand-alone tax-preparation package available for Macintosh users again this year. Luckily, it's an award-winning package that many observers consider to be among the best-crafted examples of Mac software on the market. Some 27 percent of SoftView customers last year were professional preparers.

This year's package will have a few more forms and work sheets crammed in, and it promises to offer improved capabilities, such as the ability to import data from home accounting packages.

In addition, the new release, due in late February, will include a module for electronic filing, a feature that, by law, can be taken advantage of only by a registered tax preparer. That's part of a push for professionals that SoftView President Sue Morgan has identified as a priority. In fact, Morgan has been talking to such companies as Arthur Young and Co. to determine what elements a full-blown professional package should offer.

Heizer Software. Irving Bernstein, a tax preparer from Mill Valley, Calif., bought a set of Heizer Software's Tax Templates at last year's San Francisco Macworld Expo. The $25 price tag was a show special. "I couldn't believe how effective [the templates] were," said Bernstein. "Why pay more?"

The Tax Templates from Heizer's Excellent Exchange, for Microsoft Excel and Works, contain more than 30 forms and schedules. There is also a check editor, an audit warning and a depreciation work sheet. Heizer offers state forms for California, Minnesota and New York, a separate business forms set, and an on-line tax advice book called "HyperTax."

Bottom Line. A newcomer to the Macintosh tax market, Bottom Line by compuCRAFT of Highlands Ranch, Colo., offers the largest collection of business and personal tax form templates in a single package — more than 50, including work sheets. The package is sold as an annual subscription. Throughout the year, compuCRAFT promises to rush the IRS' latest form to subscribers as rapidly as possible.

EZTaxes. EZTax Prep, a set of Excel templates by EZWare of Bala-Cynwyd, Pa., has long offered the most extras for the tax professional. These include client letters, a client organizer, an audit alert and a cross-reference consistency check.

The company does not offer a package of business returns. It does, however, offer EZTax Prep 1065 and EZTax Planner Business Edition, both specifically designed with professionals in mind. The 1065 package can batch print K-1 forms with a mailing label and instruction letter for each partner. An invoicing system is also included.

Tax Stack Humor. A HyperCard tax stack would be novelty enough. But StackWorks, of Urbana, Ill., has attempted a much more difficult phenomenon, a slapstick tax stack that really works. Those who don't particularly enjoy working with numbers will find these cards a less-daunting approach to filling out tax forms. The printed results, as with all the packages considered here, can be signed and submitted to the IRS. As Sandy Levin, president of StackWorks, said, "We think taxes are too important to be taken seriously." — *By Scott Beamer*

How to avoid a headache

SAN FRANCISCO — While many Macintosh owners get first-aid help from their Mac at tax time, there are also year-round tax accounting programs for the Macintosh to help users avoid nasty surprises on April 15 and promote smarter financial decisions throughout the year.

Andrew Tobias' Managing Your Money, by Meca of Westport, Conn., is a major player among them. The Tax Estimator, one of eight interrelated modules in the program, includes most of the major tax forms, although they are line-item work sheets and not WYSIWYG tax forms.

For users who need more complex tax planning help, SoftView has recently released TaxView Planner, a program containing tax tables for the next five years and a dozen work sheets for entering income and deductions. TaxView Planner allows users to view up to five years' worth of five different scenarios at a time and instantly calculates 19 taxable amounts and the expected tax bill. The new W-4 form is included.

Users who prefer a more flexible tool, such as Excel, may opt for EZTax Plan. Both Business and Personal templates are available, and the program can handle up to 45 years of projections at a time. With EZTax Plan, users can enter inflation rates and personal growth rates for every year. — *By Scott Beamer*

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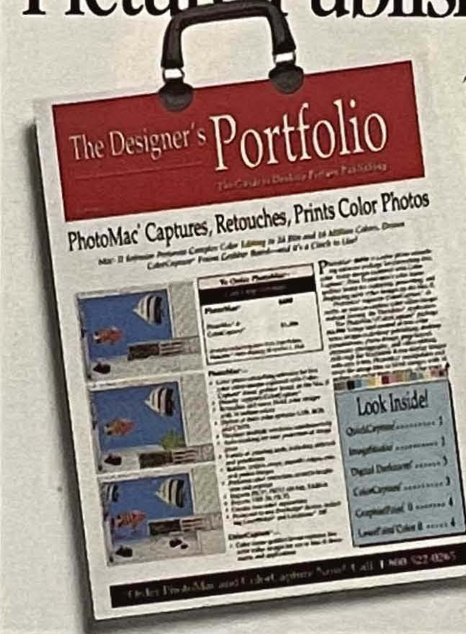

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TAXES

Continued from Page 24

program could not be done when we started," Ribar said. "We had to turn what was essentially an art into a science."

When Ribar and a part-time accounting consultant started to work on the expert system, they had no manual or textbook on loan auditing they could turn to. "There was nothing at all in the professional literature. The only thing we knew was that the more experience you had, the better you did it," Ribar said.

Ribar was also looking for information on turning the expertise into the set of rules that make up an expert system, a process known as knowledge acquisition. "I remember going to the American Association for Artificial Intelligence and asking every publisher whether they had anything on knowledge acquisition," he said. "The answer was 'no.' "

Ribar and the consultant responded by creating the knowledge-acquisition techniques as they went along. They started by letting an expert describe, through a process of free association, the types of problems he encountered in the auditing process.

The main expert used for the project, Mike Martin, a partner at Peat Marwick's Pittsburgh office with 17 years of auditing experience, said that he was initially skeptical about the idea of turning his expertise into an expert system. But "once I realized how my knowledge could be put into logic diagrams, I started to believe in it," Martin said.

To get to the diagrams, Ribar would complete an outline of a particular type of problem and then narrow the discussion to focus on the factors that went into making a specific decision. The goal was to get the number of factors down to five or six, which is about the maximum number of factors that psychology has shown that the human mind can handle at any one time.

In questioning Martin, Ribar worked his way down from the abstract to the concrete. "An important criterion for the soundness of a loan is the financial condition of the borrower, for example. But that itself is very abstract, so you ask next what determines that," Ribar said. "You start with the general and iterate to specifics, and then you start another cycle and keep going. Each time you do it, you're closer to something more tangible."

Ribar would then draw the logic diagrams, similar to but more sketchy than what programmers use, to outline the reasoning process. The walls of the conference room where the interviews were conducted were soon plastered with the diagrams.

Once Ribar had the basic conceptual model, he took it to various Peat Marwick offices around the country, where auditors critiqued the model. Ribar then turned the logic diagrams into decision trees, with branches representing all the possible outcomes of an audit. These branches formed the basis of the rules in the expert system.

The knowledge-acquisition process turned out to be by far the lengthiest part of the development process. It took Ribar and the consultant more than a year, typically working two days a week, before they wrote a single rule. "That was much longer than we had imagined," Ribar said, "but that was because there was no explicit knowledge [in accounting] readily available."

The decision trees lent themselves naturally to commercially available development environments, or expert system shells, for expert systems. But that still left the problem of which of the available expert system shells to choose.

"People classify expert system shells as large, medium and small," said Richard Webb, a partner in charge of audit technology who supervised the project. "The real criteria is that anything priced at $5,000 is large, $1,000 to $5,000 is medium and anything less than $1,000 is small."

Peat Marwick chose a small shell, Level 5 from Information Builders Inc. of New York. The deciding factor was not price, but rather that, unlike its more expensive competitors, Level 5 did not require a specialized workstation costing tens of thousands of dollars for development or delivery, according to Webb.

In addition, he said, even though Level 5 is limited in functionality compared with more complex expert system shells like KEE from IntelliCorp of Mountain View, Calif., the more advanced systems require a great deal more training to use.

In late 1985, Ribar coded the first usable system on a PC because Level 5 did not become available on the Mac until last year. The prototype performed satisfactorily, but only in the hands of an expert. It wasn't until 1987 that the team refined the system enough to be used in the field, and for this auditing season Peat Marwick trained 1,000 of its approximately 2,600 bank auditors to use the system in a two-day seminar.

In the end, Loan Probe cost Peat Marwick an undisclosed amount "in the millions," Ribar said, adding that "just the cost of training 1,000 people for two days was $640,000."

While Peat Marwick executives are enthusiastic about Loan Probe, the company isn't about to apply expert systems to everything. For most problems, the company prefers to stick with the more cost-effective mathematical and statistical modeling.

But if Loan Probe proves a success in the field this year, Peat Marwick will make it commercially available to its clients, according to Webb. "We're not just dealing with a computer system," he said, "but a completely different methodology of auditing loans." And, he might have added, of thinking about computers. □

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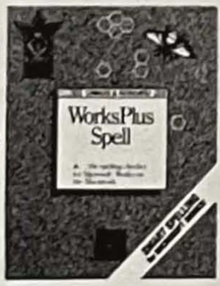

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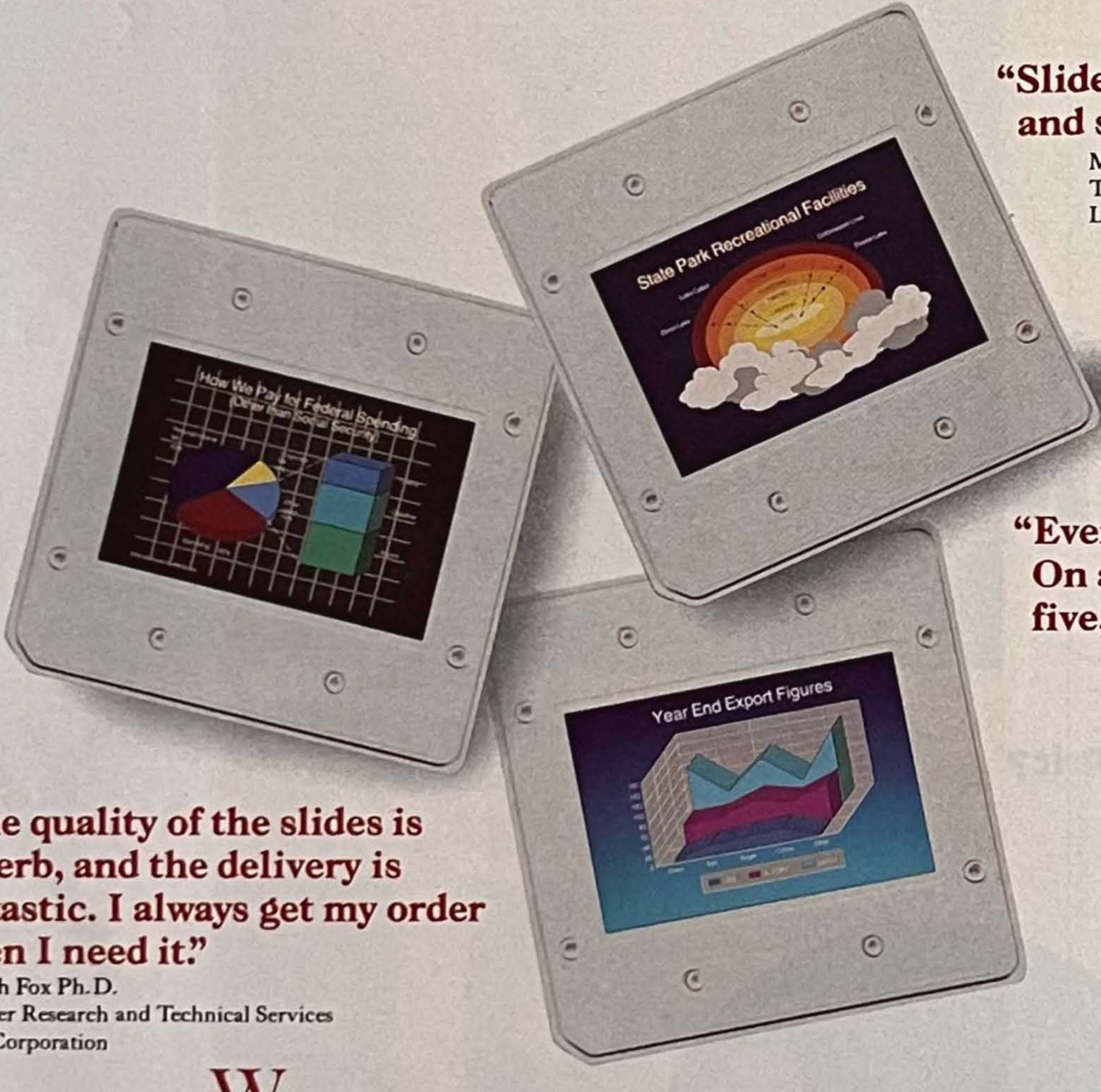
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BOLDFACE: Yet another stupid war

BY EZRA SHAPIRO

The computer industry has chosen to educate the business world in the niceties of graphic design — a subject about which they patently know very little — rather than to teach the graphics community how to use computers — a subject about which they're the obvious experts. If you view computer marketing as a spectator sport, this is pretty funny. If you're trying to make a living as a designer, the laughter doesn't come quite as easily.

There are four factors that contribute to this reversal. First, desktop publishing evolved from the bottom up, ascending from microcomputer word processors and toy-like paint programs. Had the development instead moved downward from high-end mini-based pagination and image-processing systems, sophisticated functions (like kerning, for example) might have been included from the start rather than tacked on later.

Second, the business market is larger than the graphic arts market by several orders of magnitude. Sheer economics legislate against selling into a specialized niche.

Third, the design community is a tough market to penetrate. Not only are art directors less likely to be impressed by features that would blow away someone accustomed to character-oriented word processing and dot matrix printout, they're difficult to reach. They're traditionally neither magazine readers nor mail-order customers; a large proportion of graphic arts equipment is sold by direct contact. It takes time to develop a sales force capable of such a mission, to say nothing of the cost.

Finally, there's attitude. Even though designers frequently manipulate large budgets, supervise staffs, handle client contact and generally perform all those functions that define the typical business manager, they also pride themselves on their artistic temperament, wear jeans to the office and play music while they work. At least that's the stereotype, but like all stereotypes there's some basis in observed truths. Just take your average business sales representative and your average designer and try to get them to communicate on the same wavelength. Not easy.

I place much of the blame for attitude problems on the computer side. Though graphics people are dubious about new technology, they're not retrograde thinkers. They were perfectly willing to abandon letterpress printing and hot metal for offset lithography and computerized phototypesetting when the time came. There's no dearth of technical skill, either; coping with picas and screen angles and various photographic operations is no less demanding than mastering ROM, RAM and multitasking. These are the people who would seem to be the most likely candidates for conversion to desktop publishing. Further, they would comprise a perfect "mentor group," in-house experts who serve as unpaid missionaries for modernization. So what's the hassle?

In their enthusiasm for those mythical corporate customers who wear three-piece suits and write purchase orders for thousands of units at a crack, desktop publishing vendors have neatly positioned themselves as antagonistic to graphic artists. The message comes across loud and clear: Desktop publishing technology obviates the need for art departments and by extension the people who staff them. Have you ever read a manual that suggested hiring a professional designer for difficult projects? Nope, businesspeople are now supposed to be able to do it all themselves. Is it any wonder that designers respond with hostility? They're being told they're obsolete.

When designers do attempt to investigate the technology, they're met with a discouraging series of obstacles: retail salespeople who treat them as if they were illiterate children, training programs designed for business types with no art background, computer magazines offering little information for anyone who isn't already entrenched in the discipline, graphics publications that only rarely speak to the relevant issues, and so on. It's a dark vista indeed.

Depending on your viewpoint, it is either ironic or tragic that the one group that can give desktop publishing vendors everything they need — strong advocacy, educational support, conceptual assistance, development testing and significant sales dollars — has to be dragged kicking and screaming to the technology. Fortunately, a handful of firms have indeed attempted to cultivate graphic artists as a real market, and more and more designers are beginning to reach out to desktop publishing. So there's a flicker of light at the end of the tunnel.

But as long as the computer industry continues to promulgate the myth that even the dullest idiot can turn a sow's purse into a silk ear by waving the magic wand of desktop publishing, the best and the brightest will remain skeptical, outside the enchanted circle. □

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April Greiman update: Mac tile design

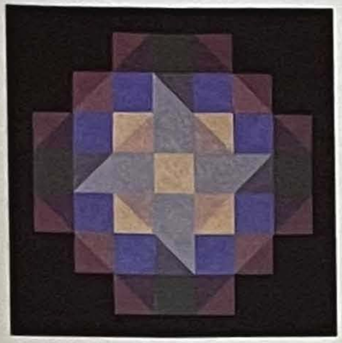
In 1991, the Southern California city of Cerritos will have a new performing arts center. Ceramic tiles, in a graceful, mosaic-like design, will transform the structure into a striking amalgam of ancient Arabian and post-modern architecture.

Intricate tile patterns will cover roofs and walls, border balconies and decorate panels.

Artist April Greiman, hired by architect Barton Myers, designed the elegant tiles. And as usual, she used modern technology to achieve her look. The Los Angeles-based Greiman, who is known in part for her use of high-tech art tools, developed the tile designs with the Macintosh in mind.

tized the video image into the Mac with MacVision by Koala Technologies.

The digitized image was opened in FullPaint from Ashton-Tate. It was too rough and didn't show the subtleties of gray scale that were needed to evaluate the patterns once they were strung together. Lime green and lemon yellow looked too much alike in their gray translation. To remedy this, the image was transferred to Letraset's ImageStudio for better resolution and manipulation; for repetition it was put into FullPaint, which lost some of the gray value but took less memory. The complete pattern was



Examples of Greiman's tile motifs.

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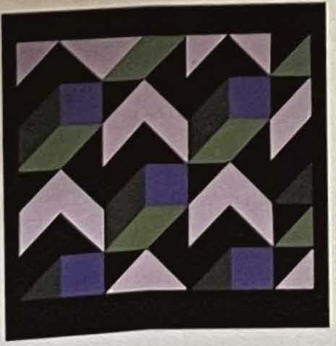
d to the architects and what we will present to the Cerritos people." — *By Elinor Craig*



LetrTuck advances Macintosh typograph

As the Macintosh invades type shops and design studios, even the most demanding typographers are finding that their standards needn't be sacrificed for the Mac's ease of use and the power of WYSIWYG. But one complaint professionals have had with the Mac is that it doesn't give them the control they need over kern pairs. A tiny application called LetrTuck from EDCO Services is changing that.

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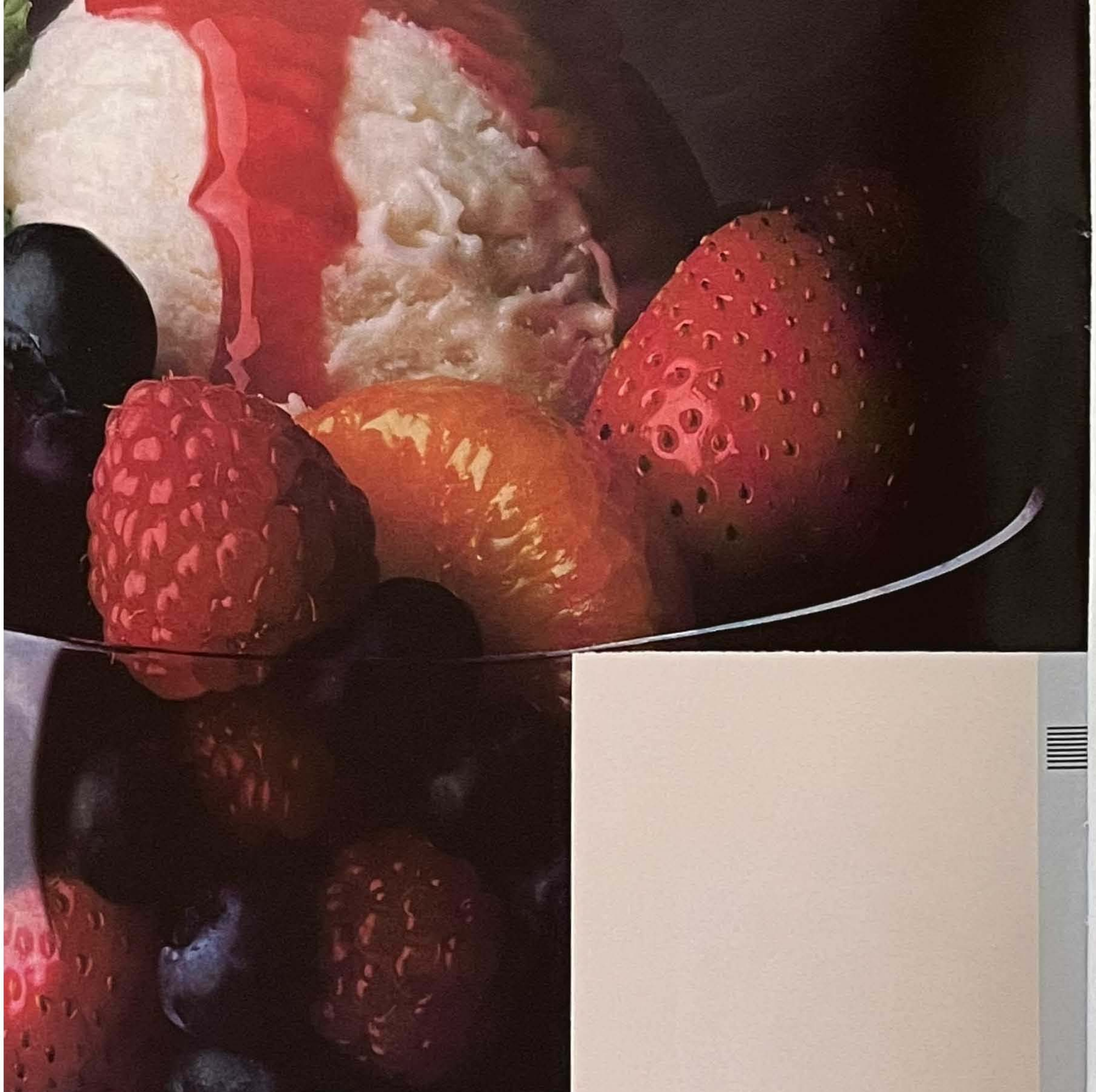

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April Greiman u
Mac tile design

In 1991, the Southern California city of Cerritos will have a new performing arts center. Ceramic tiles, in a graceful, mosaic-like design, will transform the structure into a striking amalgam of ancient Arabian and post-modern architecture.

Intricate tile patterns will cover roofs and walls, border balconies and decorate panels.

Artist April Greiman, hired by architect Barton Myers, designed the elegant tiles. And as usual, she used modern technology to achieve her look. The Los Angeles-based Greiman, who is known in part for her use of high-tech art tools, developed the tile designs with the Macintosh in mind.

"We couldn't have done by hand what the computer did with repetition and consistency of gray values," she said. "We would have done something much more simple."

The Mac can repeat one motif, or combination of tiles, with an accuracy of angles and of color values translated into gray scale which is impossible by hand. The Mac produced a much stronger representation of the values of each color when they were reduced to gray scale, according to Greiman.

Starting with color PMS chips, the design team created seven elaborate motifs. They took a video image of the motifs and then digitized the video image into the Mac with MacVision by Koala Technologies.

The digitized image was opened in FullPaint from Ashton-Tate. It was too rough and didn't show the subtleties of gray scale that were needed to evaluate the patterns once they were strung together. Lime green and lemon yellow looked too much alike in their gray translation. To remedy this, the image was transferred to Letraset's ImageStudio for better resolution and manipulation; for repetition it was put into FullPaint, which lost some of the gray value but took less memory. The complete pattern was

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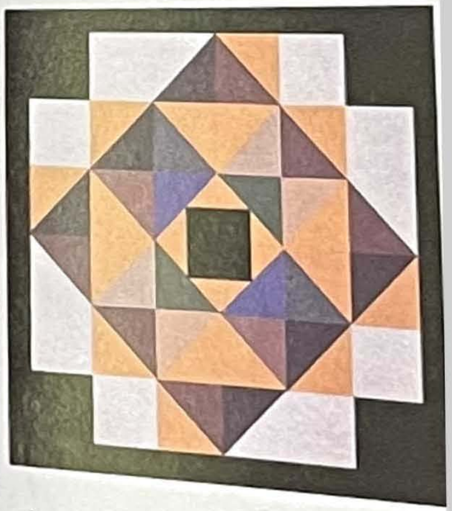

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April Greiman update: Mac tile design

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Examples of Greiman's tile motifs.

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Many patterns were examined, but by linking the motifs through repetition on the Mac, Greiman could preview the blending of motifs. She could see which combinations would create new images with white space or negative space when they were put back to back.

Another design problem put to the Mac was what the motif, with a 45-degree angle design, would do when it met with the 48-degree pitch of the roof.

"When Antonio Gaudi, a 20th-century architect, was in Barcelona [Spain] he had to look at each test tile actually on the roof. We were able to go into a complexity that gave variety because we could whip up several different versions," Greiman said.

Scaled printouts of the patterns were then applied to a model of the buildings provided by the architects.

"After we felt we had a good flow around the building, pyramid roof and facade, we applied color by hand onto the printouts, so that overall we could see what colors predominated. We only had to do a few retranslations," Greiman said. "We colored over the gray values with pencil and pens. This is what what we presented to the architects and what we will present to the Cerritos people." *— By Elinor Craig*

LetrTuck advances Macintosh typography

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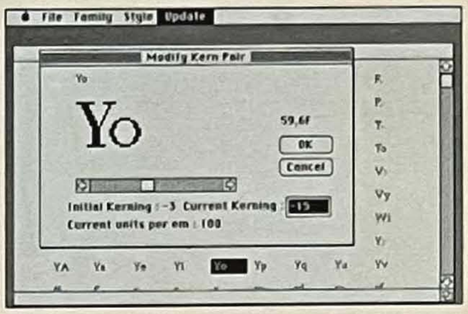
Enter LetrTuck. Not only does LetrTuck make it easy to view and adjust kern pairs, but typographers will find its terms as familiar as their pica poles: LetrTuck uses fractions of an em for kerning specifications, not points or hexadecimal code.



Initial Kerning : -3 Current Kerning : -15
Current units per em : 100

Figure 1.

Best of all, the latest version (1.05) can import text files of kern pairs in units of measure that make sense: from tenths to two-thousandths of an em.

The procedure is simple.

First, install all the screen typefaces for a font into the System file with Apple's Font/DA Mover. (When finished, kerned fonts can be saved as font files and installed with a font utility like Suitcase II, but LetrTuck needs them in the System file itself.)

Second, open LetrTuck, choose the typeface, and add any pairs that need kerning. Then use LetrTuck's handy routine that prints samples of the pairs in five sizes.

Third, create a text file in any word processor with the kerning for each pair. Files begin with a percent symbol (%) followed by the units per em used in the file. Each entry consists of two characters, an equal sign (=) and the amount of kerning for the pair — positive numbers push the characters apart while negative numbers pull them together (see Figure 2).

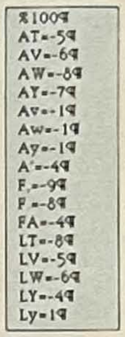


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Figure 2.

Finally, open LetrTuck, choose the typeface and load the text file. Then reprint the pairs. Any final adjustments can be made directly in LetrTuck (see Figure 1).

Of course, specifying kern pairs with LetrTuck takes just as much typographical skill as with any other system. But LetrTuck makes it simple to apply those skills to the Mac.

Typography on the Macintosh advances each time an application combines an increase in control with familiar tools. By this rule, LetrTuck sets a fine example.
— By Roy West

Photo outlining techniques

Photos are usually scanned in rectangles and are printed this way in publications. There are times, however, when a design deviates from this rule and requires outlining, or silhouetting, subjects in a picture. Outlining or partially outlining subjects can offer a dramatic effect, especially if copy is flowed around the outline. (Quark XPress 1.0 was the first page-layout program to flow text around irregular shapes. Aldus PageMaker and Letraset's Ready,-Set,Go! also adopted this feature in upgrades of the products.)

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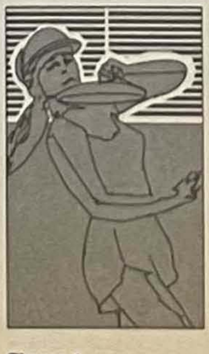
How to outline. Photos are customarily outlined either along the top or down a side. (See Figures 1 and 2.) It is best to trace a complex shape using a polygon tool (with small steps at a time) rather than a freehand tool such as a standard lasso. The original ImageStudio lacked a configurable selection tool; in Version 1.5, holding down the Control button changes the freehand lasso into a polygon lasso. Once the area intended to be erased is selected, it can be deleted via the Delete button. Smaller corrections can be made at this point.

Placing type behind part of a photo without removing the background (see Figure 3) is another effective technique. In this process, the whole picture is duplicated and an original copy is saved. The area that will overlap text (in this example the hat) is then selected and the rest of the image is deleted. The overlap shape is saved as a separate file. Once in a page-layout program, the files are reassembled. First the whole picture is placed. Then the type is placed on the top of the photo, with transparent background selected. Finally, the overlap shape is placed back over the original. Precise placement should result in a seamlessly joined image.
— By Laslo Vespremi



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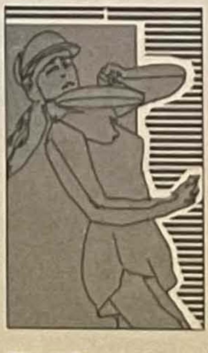

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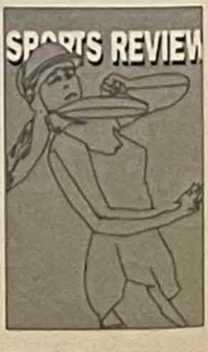

Figure 3.

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Multimedia: On the agenda

BY ANITA MALNIG

Shock waves reverberated throughout the film industry and the general public when Al Jolson in "The Jazz Singer" was seen and heard on the screen at the same time. Perhaps "talkies" were the first example of what's now being called multimedia. In its current state, multimedia has been loosely defined by Apple and the Macintosh industry as a fusion of several media to produce a singular creation that's greater than its individual parts.

From a practical perspective, the scope of multimedia can be outlined by the types of input used to create applications such as original art, animations, captured video, scanned images and sound, which are combined and output on such devices as the Mac screen, video monitors, slide projectors and large-screen displays.

The computer industry envisions this set of tools and concepts as a useful enhancement for business and education, but multimedia is not a term or concept invented just yesterday for high-tech consumption. It has a cultural past, an evolving present and a visionary future.

The roots of multimedia. In avant garde theater, "mixed media" has been a part of performance arts for many years. As far back as 1917 in Paris, filmmaker Jean Cocteau directed a theater performance in which he included acrobats, magicians and music punctuated by actual sounds from "futuristic" technologies such as typewriters, airplane propellers and telegraph tickers.

Several years later in Moscow, Sergei Eisenstein directed a performance that involved not only the use of film clips but also actors exchanging dialogue while tightrope walking above the stage. Bertolt Brecht's approach in the 1930s appears strikingly contemporary today as he sought to make the audience an active part of the performance. He projected parts of dialogue on screens and juxtaposed lights, scenery and actors in provocative ways.

More contemporary still were the "happenings" of John Cage and Allan Kaprow. Cage staged probably the first happening in 1952. It included Robert Rauchenberg paintings, Merce Cunningham dance, and films, slides, radio and poetry. The 1960s saw a primitive type of interactive video performances such as Nam June Paik's Magnet TV, in which a magnet atop a television set affected incoming TV signals.

With the advent of the desktop computer and videodisc, artists and others were able to employ interactivity as we know it today into a variety of productions. The now well-known MIT Media Lab's Aspen Project of 1979 took people through a videodisc tour of the streets of the Colorado town.

Today a common business presentation is the multi-image slide show in which a special dissolve unit can control from two to 45 slide projectors.

Sensory plethora is not new.

How many make multi? Duo media, image and sound, clearly is not new either in the world at large or in our narrower computer world.

Computer animations with sound have existed almost since the beginnings of personal computers. We can look at computer games as a possible first in computer multimedia: moving images, sound, obvious interactivity, all contained in one box, seen on one screen.

Today's multimedia presentations extend the concept developed in games to encompass more elaborate forms of input such as scanned images and live video. Output also goes beyond the computer screen. For instance, videodisc players often work in tandem with the Macintosh in multimedia presentations.

What's the use? A closer look at multimedia brings to mind questions about who needs this technology and what its most useful applications are.

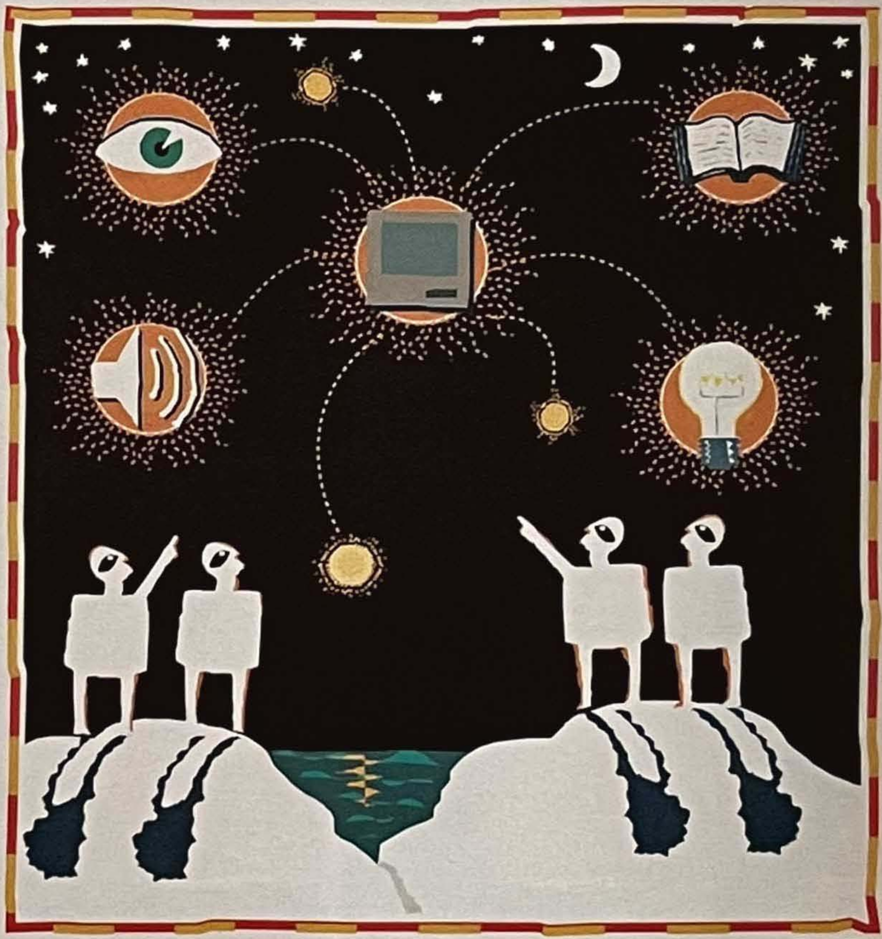
The Apple Multimedia Lab sees interactive multimedia as a "new" way of learning, through a combination of scanned images, videotape clips, text and music, and HyperCard, all controlled by one computer, with the ability to access the information nonsequentially. One such application, discussed in this supplement, is an Apple, Lucasfilm and Audubon Society collaboration. The vanishing natural habitats of ducks are explored through the use of video clips, original art and historical text.

Interactivity a key? Just as the creators of theatrical mixed media looked for a particular audience response and participation, so do today's multimedia producers. Computer games certainly depend on interactivity. Indeed it seems perhaps wasteful, if not pointless, to not take advantage of this native ability of the computer.

While the degree of interactivity ranges in the numerous examples that follow, user participation is clearly there. The user can, in effect, create a customized presentation of the given material. For some multimedia creators HyperCard is essential; others are using the interactive module of VideoWorks or a variety of authoring software tools.

What about the content? Although the technology itself might become instrumental in determining the content, we would hope that the technology will inspire higher thinking and creativity whether it be applied in business, education or the arts.

Some multimedia advocates say the nature of print, of what will appear in print will change. With increased capability to capture images both moving and still with high-level text scanning, more of what has been confined to print can become electronic. An annual report, for example, might work better as a HyperCard stack than as a printed document. But, take heart, printophiles. This is not the death knell of the printed word. Long passages of fiction, philosophy, science still need to be presented on the printed page.



GORDON STUDER

Can anyone do it? As the articles that follow show, creating multimedia presentations is not out of reach to the average Macintosh user, but neither is it as easy as a mouse click. While somewhat analogous to desktop publishing, multimedia produced on the desktop requires more involved software, various types of hardware, knowledge of video and its standards, understanding MIDI if you go that route with sound, and so on. Consider also common hardware limitations such as write-only videodiscs and insufficient memory to run lengthy animations. Multimedia design is also similar to desktop publishing design in another way: Just because you can use the technology doesn't mean you have the design expertise to create something visually stunning that will entice people to spend time with your work.

Why do it? Proponents say multimedia has the potential to become an advanced form of publishing, teaching and disseminating information; out of it may come new combinations of material not imagined to be linkable. As examples in this GA show, the possibilities for enriching the learning experience, whether in business or education, can be dramatic. In an Apple Multimedia Lab project, students read John Steinbeck's novel "The Grapes of Wrath," then move on to a production that includes material contemporaneous with the book: speeches by Franklin Delano Roosevelt and music by Woody Guthrie.

Another example is a youth correction facility in Sacramento, Calif., that uses Mac-based training systems to teach safety procedures to personnel.

On the other hand, it remains to be seen whether students will make a quantitative and qualitative leap in their learning through these presentations. Maybe the "multiple media" of the past, alternately reading a book, listening to a record album, looking at a videotape, will prove to be just as effective.

What of the future? As predicted in John Sculley's Knowledge Navigator, we may one day interact in real time with databases, people, museum images around the world.

For that to occur, however, hardware capacities must increase, artificial intelligence will have to become an integral part of multimedia and computer use in general will need to be more widespread.

Or if the ideas of the media gurus at MIT's Media Lab, who explore and plumb technology ranging from holograms to high-definition television, come to pass, we will see the day when we can customize news broadcasts to our own liking and interact on our own terms with the world at large.

This GA with its multimedia theme explores the current technology and its capabilities, promises and limitations. We look ahead with enthusiasm, for the future of multimedia lies in the human imagination, which, unlike today's technology, is limitless. □

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B The squid or ink fish is good bait.

C Bloodworms are a very popular bait because they are good fish food.

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Not just pretty pictures

Apple's Multimedia Lab: Content is key

BY CONNIE GUGLIELMO

Apple's own Multimedia Lab puts content and interactivity at the top of its multimedia agenda.

MICHAEL JAY

ED KASHI

Above, Sueann Ambron, senior designer and co-director; and Fabrice Florin, designer, of Apple's Multimedia Lab. Left, one of three examples from the interactive multimedia Grapes of Wrath project. The HyperCard information on the left screen in the photo offers a selection of 1930s radio programs.

ED KASHI

One choice is to listen to President Franklin D. Roosevelt's "one-third of a nation" speech while watching film clips of him that have been transferred to videodisc.

ED KASHI

More information about the Depression era can be gleaned from this image of a WPA mural from San Francisco's Coit Tower.

Although "interactive multimedia" is just starting to become an industry catchphrase, designers at Apple's Multimedia Lab in San Francisco have been using the Macintosh as a multimedia platform for the past three years.

"Interactive multimedia is computer-centered media," said Sueann Ambron, senior designer and co-director of the lab. "What we're doing is using the computer as a window on different kinds of information."

The mission of the lab, housed in three modest offices, is to build prototypes of interactive multimedia presentations, Ambron said.

Most of the lab's prototypes are HyperCard-driven, which means users or viewers are a button click away from a huge database of information. That information is stored in a variety of forms, including text, video, film, graphics and sound. Because HyperCard provides a non-linear way to link information, users can choose the direction the presentation will take.

In one such project, the Constitution Learning Station, Apple, Optical Data and Scholastic Software, its collaborators on the project, tried to breathe life into the U.S. Constitution by turning the document into a "Living Museum."

Users are provided with a map of the museum and its galleries; each gallery corresponds to some aspect of the Constitution. With a mouse click, viewers can move, for example, from reading about the Civil Rights Act to a film clip of James Meredith as he becomes the first black student to enroll at the University of Mississippi.

"There's a certain frustration with television that comes from the fact that it's a very powerful medium, but the experience that you generate is fleeting in nature," said Fabrice Florin, a former video producer and now one of the lab's principal designers.

"With interactive multimedia," he added, "you are suddenly able to link the power of video with the power of the computer. You can click on the screen to find out more about what you've just seen and the TV screen essentially talks back to you. It's not a linear experience any more."

Most of the projects under development are collaborative efforts. Some of Apple's partners include National Geographic, Lucasfilm and the Audubon Society (see next page).

"With multimedia, we've discovered that the big C is content," Ambron said. "We focus on content first and then figure out how the technology can deliver the information. All the applications are content-driven."

"We start with one concept, a central idea and a metaphor that goes with it," Florin said. "With the Constitution, we wanted it to be about the history of the Constitution and we wanted it to be staged in a museum. With Life Story, we said 'Let's take a drama and weave in some information that goes with it.' "

The first Life Story project, a look at the two scientists who discovered DNA, linked filmed interviews of the scientists and a drama about their lives done by the British Broadcasting Corp. (BBC) to a stack containing information about DNA. The map to the stack contains a drawing of a double helix; users click on parts of the structure to view the drama or interviews or display illustrations showing the molecular structure of DNA.

Other Life Story-type presentations might examine the life and work of Einstein, Picasso or Gandhi, Florin said. The DNA presentation was a collaboration between Apple, Lucasfilm and the Smithsonian Institution, but Florin noted that the Discovery Channel, a cable TV station geared toward the educational market, is also interested in creating and distributing Life Story-type presentations.

The film and video clips and photographs for each presentation are stored on videodisc, an optical storage medium. A videodisc player and video monitor are connected to the Mac and driven by HyperCard. For the most part, the technology driving the presentation is transparent to the viewer.

"Let everyone else take care of the technology and we'll take care of the content," said Patricia Hanlon, a teacher at San Francisco's Lowell High School. She and Robert Campbell, the school librarian, have been working with the lab on an interactive multimedia presentation based on John Steinbeck's novel "The Grapes of Wrath."

The presentation combines passages from the novel with information about the Depression, including photographs of murals from San Francisco's Coit Tower depicting life at the time, a selection of radio programs from the 1930s and a film clip of Franklin D. Roosevelt talking about the nation's poor.

"I think one of the important things it does is let the students feel like they were there," Hanlon said.

In order to keep viewer interest in the presentations high, the lab is continually experimenting with design examples. It has invested between $60,000 and $70,000 on equipment, including scanners, video digitizers, audio digitizers, 35mm still cameras, CD-ROM players

See MEDIALAB, Page 12

'Disappearing Ducks': A multitalented collaboration

BY ELINOR CRAIG

> *A strong team of Apple, Lucasfilm and the Audubon Society uses a multimedia platform to address crucial environmental issues.*

At Skywalker Ranch, hidden in the hills of San Rafael in Northern California, employees at Lucasfilm are putting finishing touches on a serious search for vanishing natural duck habitats. But The Mystery of the Disappearing Ducks, an interactive multimedia program, does not give answers. It asks questions.

On a larger scale, a collaboration between Lucasfilm, George Lucas' state-of-the-art film facility, and Apple's Multimedia Lab is also about asking questions, questions about how video, sound and computers can be combined to produce a multilayered, interactive product.

The Mystery of the Disappearing Ducks is only one of several design examples, or prototypes, developed by the umbrella collaboration. In this case, the Audubon Society provided the content: video takes from "Ducks Under Siege," a television special that aired twice in the summer of 1987 and again this past summer. The video clips were transferred to a videodisc controlled by a HyperCard driver and linked to stacks full of text and images of duck data.

Glen Olson, naturalist for the Audubon Society, said waterfowl populations for North America are at a 30-year low and that the loss of wetlands due to conversion for agricultural and residential use is the biggest factor. Yearly 300,000 to 450,000 acres are being lost in the United States. The Audubon Society hopes to use the presentation as an educational tool.

The Mystery of the Disappearing Ducks, designed for, and in part by, high school students, was started in June 1988 and nearly finished five months later, as has been the case with other Lucasfilm multimedia design examples. Only minor adjustments remain for the program to go into production.

"Design examples have two purposes: to demonstrate possibilities and to experiment with possibilities," said Stephen Arnold, general manager of Lucasfilm's games division. "But ultimately we want to move beyond the technology and get to the experience. To do this, one objective was to take off-the-shelf products to create the example." Using today's equipment gives the collaboration a chance to make a difference now not tomorrow.

To view the duck mystery, a Mac SE, videodisc player and television monitor are all the equipment that is needed. A power amplifier is not necessary but is handy when using the program with a class or group.

Designing the mystery to be viewed with readily available hardware was not the only attempt at making the product accessible. The Lucasfilm design team, headed by Craig Southard and supported by David Lawrence, labored inside HyperCard to create an environment that would seamlessly link text, graphics, sound and the videodisc.

"You need a core design team that can cover programming, illustration, graphic design, writing and sound," Southard said. "For writing, we even had narrative writers and educational writers from Audubon."

The task was further complicated because of the sheer volume of sound involved. Audio analog files, which included narration, interviews and music, were pressed onto the videodisc. Other audio files, such as sound effects and more narration, were digitized and kept in a HyperCard stack on the hard disk.

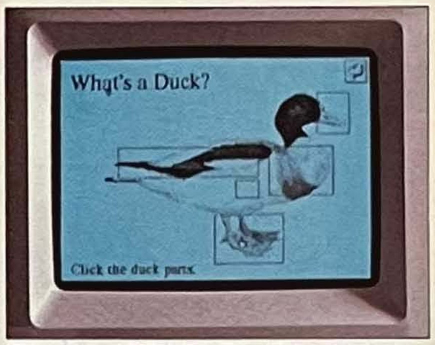
Combining the different elements is the hurdle, according to Rob Semper, Lucasfilm director of education projects. "There are three basic issues when constructing a multimedia product: sound and images in the video domain, sound and images in the computer domain, and linking the two," he said.

The sounds and images in the video domain came from "Ducks Under Siege." The tapes, normal linear video, had been "repurposed," or used again in a different structure. "Originally we planned to go through a log of the source material then send a list of selects to Audubon. That isn't the way it happened," Lucasfilm's Lawrence said.

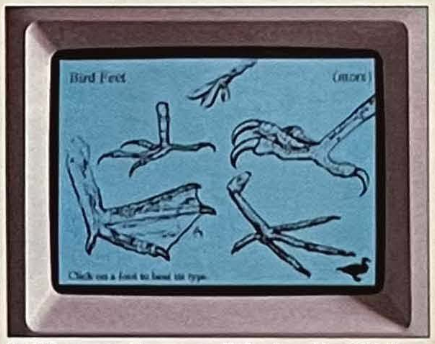
What they got was raw stock. Looking at 40 hours of material with no documentation is not the usual method of editing; it's too time-consuming. It did, however, give them a good feel for the material.

From betacam video takes, one of the highest-quality video formats, the team made content choices to narrow 40 hours of video into one. They transferred the hour to the broadcast mastering standard of 1-inch tape to be pressed onto two check discs.

Several check discs were made in the process, and although not of the best quality, at $300 the check discs are affordable and often good enough for educational purposes. To produce large quantities, a replicate disc, which is a better image, can be pressed for



This original "What's a Duck" drawing was brought into HyperCard. The user clicks on a box to get more information.



In this case, the user clicked on the "bird foot" box.

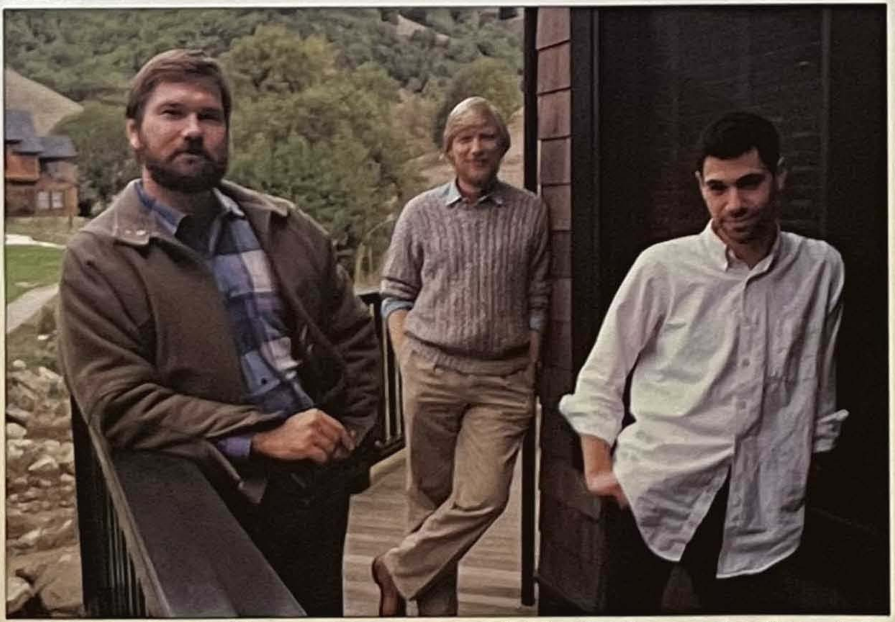
$2,500 a side, and then subsequent copies can be pressed for $10 to $20 a side.

The videodisc is a key element in many interactive media projects. A disc allows crisp freeze-frame images and random access to images, as opposed to moving backward and forward on a videotape. When a videotape is pressed to disc, each frame is assigned a number. A HyperCard external command can then allow HyperCard buttons to be linked to a certain area on the disc.

While the video material for the duck mystery had already been produced by the Audubon Society, all of the computer images had to be created. Southard and Lawrence combined scanned images and drawings done

See DUCKS, next page

PHOTOS BY MICHAEL JAY



From left, Stephen Arnold, general manager, games division; Rob Semper, education projects director; David Lawrence, senior designer; not pictured, Craig Southard, design team head.

Bill Sweeney, former regional manager for Fish and Wildlife Service in California, appears in a video clip at left. His comment typifies the project's topic: "Fish and wildlife are simply indicators of whether the environment is healthy or not, and when they lie there and die, something is wrong."

MEDIALAB

Continued from Page 10

and software such as MacroMind Inc.'s VideoWorks II animation program.

But HyperCard, Florin said, is what makes interactive multimedia possible. "Before HyperCard, there was pretty much nothing in the way of easy-to-use authoring tools. I thought maybe I should learn Pascal or Basic, but I was a TV producer, damn it, and didn't want to learn a programming language."

Although there are no set formulas for creating presentations, Florin and the small team of designers working on the projects have come up with some rules of thumb. "A picture is worth a thousand words, and sound is worth a thousand pictures," he said. "Also, a picture is worth nothing if it doesn't have a caption."

Florin also found that small clusters of pictures about the same subject are more effective than a single image. In addition, motion and sound bring text to life, even if just one sound is used.

But more importantly, the lab has found that there is a point at which viewer attention wanes no matter what is on the screen. So the next step is to create a system that allows users to cut and paste information to create their own versions of the presentation.

"If you can collect things scavenger-style and put it into your own workstation, suddenly you're taking that information and making it your own. At that point it becomes not just information, but knowledge," Florin said.

Although the future of interactive multimedia looks bright, Ambron and Florin see several roadblocks to overcome before multimedia technology moves into the mainstream.

When some of the lab's design examples, including The Grapes of Wrath and the Constitution, will be turned into finished products is a question Apple is not ready to answer.

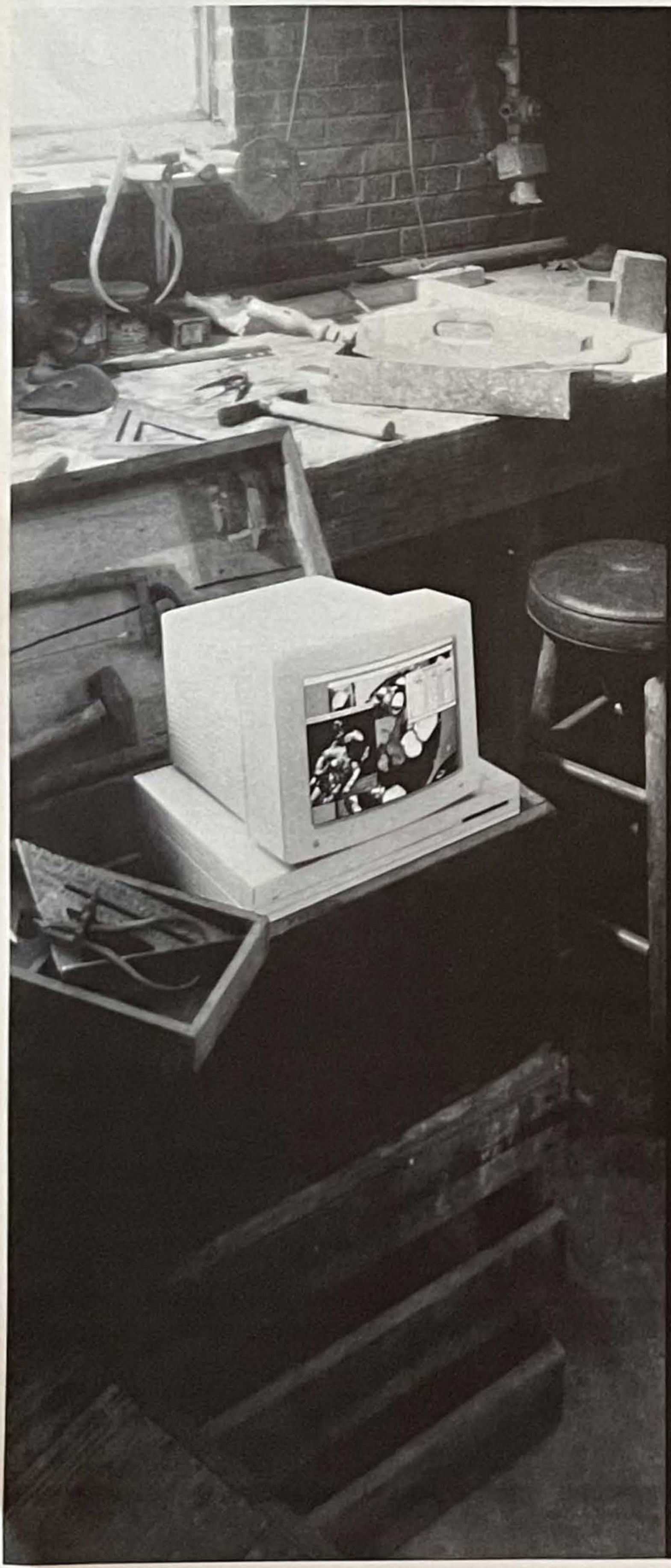
The company has only recently formed a Business Multimedia Markets Group, of which the lab is now part. In November 1988, it hosted its first Interactive Multimedia Developer's Conference. The three-day event, designed to educate the Mac community about interactive multimedia, drew more than 700 attendees, half of them Apple employees.

For Florin, a central concern is making the technology more accessible to the average user. "The problem is that the market is not there yet, and the platform for doing these kinds of presentations is not inexpensive enough to take into the home," he said.

According to Ambron, there are several practical considerations. "We need a standard delivery environment and a single publishing medium. There are also copyright questions when you have a multimedia presentation that incorporates music, video and film from different sources. The copyright laws are not written for this class of materials, " she said.

There are also questions as to whether would-be multimedia developers understand what they are getting into.

"There is an art to this, an artfulness," Ambron said. "Some people think you put film, sound and text together and you have a multimedia presentation. It doesn't work that way. Just because you know how to type and you know the language doesn't mean you can write a book." ☐



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DUCKS

Continued from previous page

in SuperPaint from Silicon Beach and HyperCard's paint tools for the basis of their graphics. Clip art was also used for backgrounds.

Along with the development of the videodisc and graphics, the team created 20 HyperCard stacks. Southard said that working with a number of stacks makes it easier to manage resources and lets several people work at the same time. "When creating stacks that are graphic intensive, you have to plan around how much hard disk space you have," he said. "And audio files take a lot of space, too. A hint is to never make a stack that is bigger than 800 Kbytes.

"The critical areas in designing the stacks are to make a good graphic design and a clear interactive design, making navigation through the program fairly easy and intuitive," he said. "You can't shortchange in getting a good designer. The user has to know what is a button and what isn't."

HyperCard has made building design examples possible where the costs for production were previously prohibitive. However, Lawrence did find drawbacks. "From a developer's perspective, HyperCard is a fluid environment [in which] to whip things up quickly. But it could be dangerous on big projects because it allows you to throw up structural inefficiencies that will come back to haunt you," he said.

To avoid building a trap that would force compromise on design or content, the entire duck mystery concept was thought out before any programming started.

"We tried to think of these things from the start, what kinds of rules had to be followed so you wouldn't have structural problems," Lawrence said.

To develop cards in a stack using templates, for instance, there is a tendency to clump buttons or graphic elements that share placement and function on all cards in a stack. This can be a problem if structural changes are made down the road that include changing the common elements in the stack.

"The structure must be planned concerning what is and isn't shared," Lawrence said.

The Mystery of the Disappearing Ducks was developed in several different ways in an attempt to find the most efficient, cost-effective method. Although there are no immediate plans for full-scale production, the Audubon Society is raising funds to convert the design example into a marketable product by the summer of 1990 and plans, ultimately, for a series, according to Chris Palmer, Audubon vice president/executive producer. ☐

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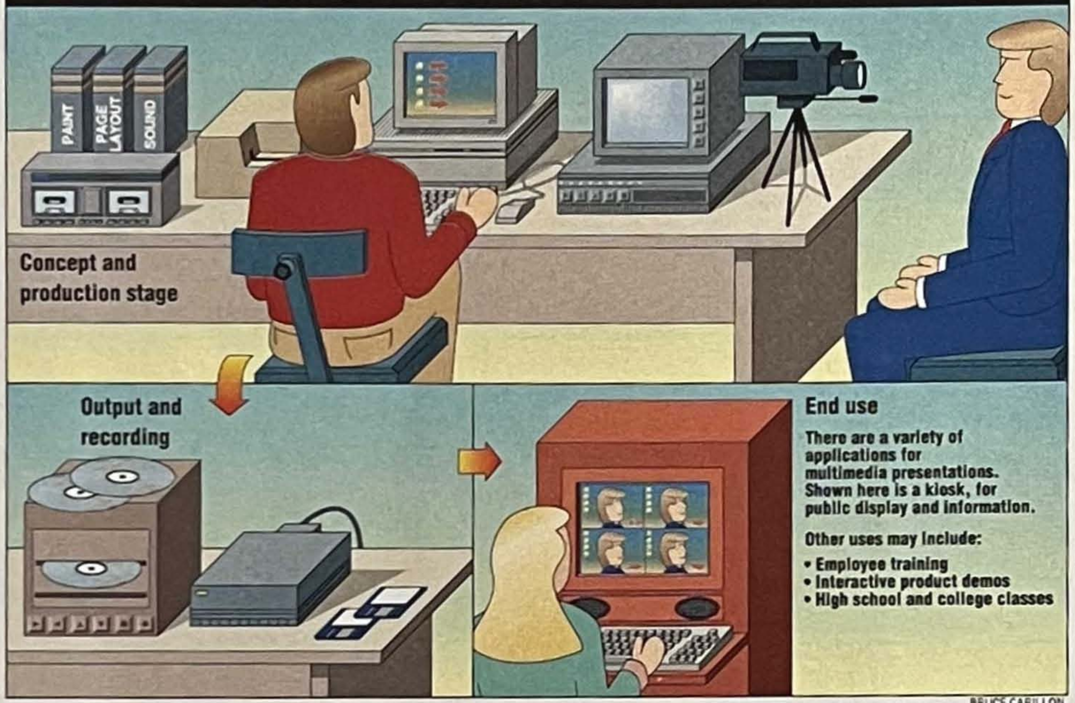
The parts that make the whole: A product lineup

BY STEVE ROSENTHAL

Making all the elements work together is vital in a multimedia production. These parts include original art, scanned images, animated sequences, video clips and more. The product pool is growing, as are ways to link the pieces together.

A multimedia project comes to life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PAGE LAYOUT
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Concept and production stage
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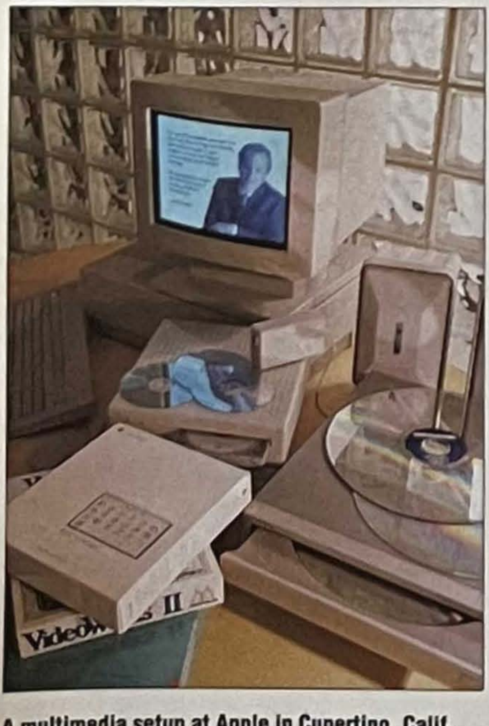
End use
There are a variety of applications for multimedia presentations. Shown here is a kiosk, for public display and information.
Other uses may include:
• Employee training
• Interactive product demos
• High school and college classes

BRUCE CARILLON

From the dedicated programmer's point of view, a sufficient selection of tools has always been available to make multimedia on the Mac. In fact, a large proportion of games are actually finely crafted multimedia efforts disguised as simple fun. In recent weeks and months, however, a set of tools designed for end users, along with the support needed to put these tools to use, has become available. Crafting multiple independent single-media pieces together to form integrated multimedia projects is now within the grasp of the nonspecialist.

Nevertheless, warn some of the pioneers, the field is just beginning, and a lot of rough spots and voids still remain. Fortunately, for just about every class of tools in the rapidly growing tool kit for multimedia makers on the Mac, there are examples to provide a sense of the possibilities.

MICHAEL JAY



A multimedia setup at Apple in Cupertino, Calif.

Animation, mover and shaker. Animated product demonstrations fill the screens at every trade show, and animated tours of software packages are a common element in software boxes.

Animation, in general, is the creation of apparent motion through showing a series of related images, but on the Mac, animation packages usually do more than that. Programs like VideoWorks II from MacroMind, Render and Presentation Toolkit from Visual Information, and Apple's own HyperCard also can add sound to motion and incorporate images produced in other programs. They often serve as an overall framework for bringing together complex presentations.

Animation programs find use outside of the computer industry as well. Mark Carpenter, project director at Creative Interactive Media of Santa Fe, N.M., said that his company is including animated sequences in a catalog and reference information system it's creating for a major office furniture maker. "We're trying to get away from multimedia as desktop presentation and use it more as an on-demand learning and reference environment," Carpenter said.

In addition, there are animation products for more specialized applications. Brightstar's HyperAnimation, which works with HyperCard, is particularly suited for animating faces that synchronize their movement with synthesized speech. It was used by Harry Anderson's Illusions to create the on-screen character Albert in the recent Disney television movie "The Absent-Minded Professor."

Codex, a large manufacturer of telecommunications equipment based in Mansfield, Mass., is also using HyperAnimation's anthropomorphic touch to add interest to certain segments of a 9-Mbyte training stack it has developed for its dealers and customers.

For animating titles and other character-based images, Aegis Development is putting the final touches on Showcase F/X. When completed, it should let multimedia and video producers working on the Mac give their efforts the polished lettering effects you see on commercial television.

If you need easier and faster turnaround, better interfaces to words and character data, and an output format better suited for supporting your own personal presentation, you don't have to give up motion entirely. The current generation of presentation products for the Mac are adding their own motion and transition effects.

Programs like Aldus' Persuasion, Cricket Presents, LetraSet's StandOut and Symantec's More II all have gone beyond the simple static image phase.

Education and training. Programs with an explicit pedagogical orientation also can be used to create integrated multimedia productions. Going under names such as computer-based training (CBT), computer-aided instruction (CAI) or computer-assisted learning (CAL), educational tools of this genre combine multimedia presentation elements with testing and recordkeeping features.

In addition to HyperCard, Course of Action from Authorware gets high marks from users for its visual approach to course design; Edudisc's MacAuthor/Mentor and TeleRobotics' Course Builder also are popular in corporate training and academic education.

Si Mariano, chief of the Training Division at California Department of Youth Correction in Sacramento, Calif., said that training efficiency is the reason his department is turning to Mac-based training. The Training Division has 10 principal facilities plus off-site parole offices, and every course scheduling represents a major effort. Using MacAuthor from Mentor and a videodisc it produced, the division found that its Mac-based course on personal safety alarms produced better results than ordinary live courses. "It takes 15 or 20 minutes on the machine but an hour in the class," Mariano said.

Users say that Mac-based multimedia training is easier to produce than equivalent courses based on traditional systems that combine computer text and images, such as Control Data's Plato mainframe and minicomputer-based instructional system. A course about use of the micrometer, a precision mechanical measuring tool, that the Coast Guard produced with Course of Action "took a month to develop on Plato and a week on the Macintosh," said Terry Hall, a computer-based training specialist at the Aviation Technical Training Center in Elizabeth City, N.C.

Creating the graphics. Animation, presentation and authoring programs specialize in putting elements together and consequently provide just basic tools for creating individual elements. Most programs are set up to allow users to create the more complex graphics, sounds and other pieces externally, and then bring them into the program for integration.

You can use drawing and painting to create images for multimedia. "All we needed were some simple pictures," said Scott Herring, TV production consultant and president of G & C Industries in Orange, Calif.

Continued on Page 16

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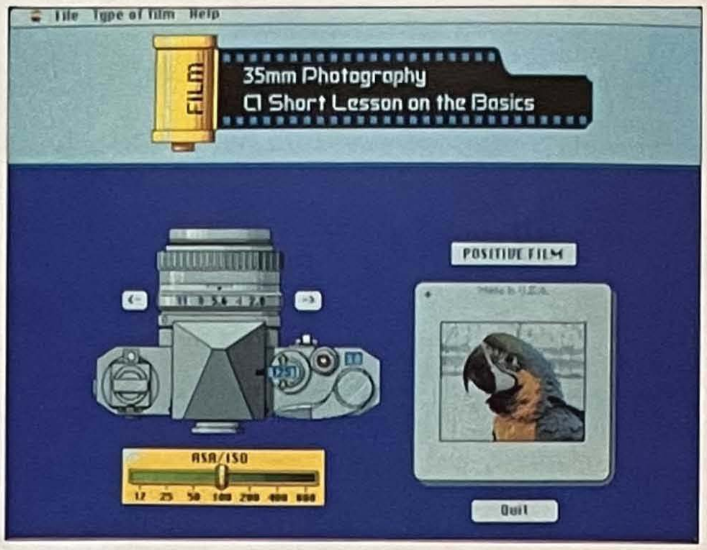
Continued from Page 14

His company just produced 60 half-hour videotapes for the City of Los Angeles that cover the basic information that immigrants need to pass their citizenship exams.

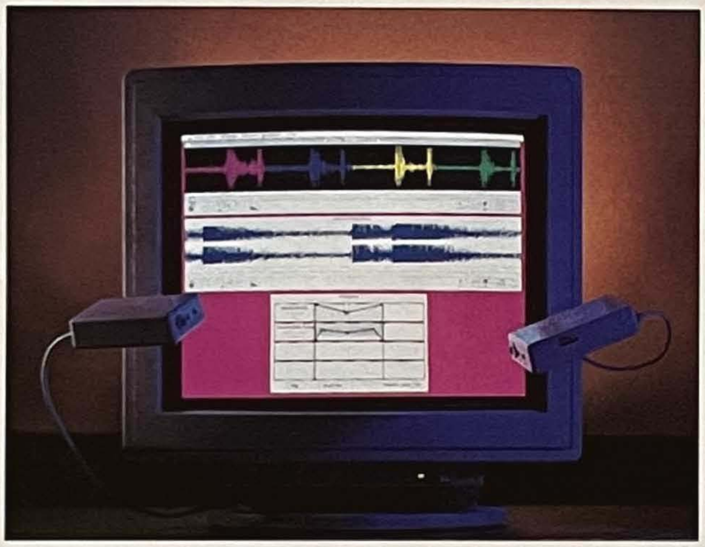
Herring used SuperMac's PixelPaint and Modern Artist from Computer Friends for most of the drawings and kept the images organized as a Cricket Presents… slide show. Among the virtues of using a presentation package for organization, he said, was that it let him sequence the images, show them full screen and even provide some simple transition effects that he used as alternatives to the effects available on the TV studio special-effects generator (SEG).

Computer-aided drawing programs can play a supporting role in multimedia, especially for creating images of mechanical and architectural objects. One company, Visual Information, already has parlayed its original Mac-based Dimensions CAD program into a complete product line that includes rendering and animation.

For more-crafted efforts, 3-D drawing and rendering programs can add realism or special effects to flat or wire-frame drawings. This is a fast-growing category of programs on the Mac, with Silicon Beach Software's Super 3D, Paracomp's Swivel 3D, and Enabling Technologies' Pro3D some of the better known entries.



The Best Course of Action from Authorware enables development of simulations through use of such things as point and click interactions, branching and digitized images.



Farallon Computing's MacRecorder works off a serial port and can be used with most Mac models.

The video world. With the right hardware and software, you can scan two-dimensional artwork with a traditional flat-bed or sheet-fed graphic arts scanner. However, video works a lot better for taking quick shots and for directly capturing images of 3D objects.

Some Mac video capture systems — also known as video digitizers, screen grabbers and video scanners — are input-only systems, while others are part of cards that provide video output as well. Input-only models include AST Research's NuView, Data Translation's QuickCapture and Color Capture, Koala Technologies' MacVision, MegaGraphics' MegaShot, and Pixelogic's ProViz.

What you can't yet do with any of those boards, though, is capture very long video sequences. Without a lot of very expensive video-compression hardware, it takes about 25 Mbytes of disk space to store each second of standard video.

One alternative that works well for multimedia is to store video sequences on a videodisc and call them into the Macintosh as needed. With the right interface software and hardware as simple in some cases as a serial cable, a Macintosh application can order up a single image or video sequence of up to an hour from a standard videodisc player. Panasonic, Pioneer, Sony and Hitachi are among the companies that make Mac-compatible videodisc players. The hookup also requires a software driver for the particular player brand and model.

All the commercial authoring programs include videodisc control drivers, as do a growing number of tutorial-oriented HyperCard stacks. You can get HyperCard drivers from Apple through its new Apple Direct program that has taken over for the former Apple Programmer's & Developer's Association (APDA), from The Voyager Company, and from other companies that specialize in stacks.

However, unless you get an interface from The Voyager Company called The Box, which hooks up to consumer videodisc players, you'll need an industrial-model player to hook to a Mac.

Then add sound. Whatever the source of the images, they will have more impact if accompanied by music, speech and sounds. As with video, getting sound into a Mac requires some external hardware, but at least the storage requirements are more modest. Farallon Computing's MacRecorder works off a serial port and is suitable for use with most Mac models, while audio digitizing boards from Digidesign, Southworth Music Systems and others require a slot. If you don't have a sample of the sound you need, you can even get it from Optical Media International's Universe of Sounds, a CD-ROM disk that has 2,500 digitally recorded sounds.

Sound editing on the Mac has drawn continued interest on its own, and as a result, there are literally scores of music and sound programs. A good number of these, including programs like Mac 'n Rack from Current Music Technology, CUE from Opcode Systems, the Max Audio Series from Southworth Music Systems and Q-Sheet from Digidesign, understand the SMPTE time code used by the film and video industry.

The playback is the pay back. Once you create your multimedia opus with all its sound and picture glory, you can show it directly on the Mac, which is a fine multimedia projector and the only choice for interactive presentations that need ongoing input.

Most Mac screens, however, were designed for only a single user. For group presentations, you'll want a large-screen monitor or a video projector. The main problem is the video signal that normally runs out of the back or directly to the screen of a Mac is Mac-specific.

To work with the Mac's video signal, you'll need a monitor or projector that has been designed to accommodate Mac video timing and format. These models tend to be more costly than standard video models, but they are available from several companies that make computer video display devices. Most multifrequency monitors and projectors designed for the higher-performance IBM PC models will also accommodate Mac video.

Genlock and overlay. If you want to use standard video equipment or want to combine external video with images produced by the Mac, you'll need video output with the right timing and levels (called NTSC or RS-170A video) as well as some synchronizing and image-combination equipment that goes under the general name of genlock and overlay.

Truevision's NuVista board includes these features, as does Computer Friends' TV Producer and Mass Micro's ColorSpace series. Parts of the task can also be done with external equipment, such as Julian System's NTSC Converter and RGB Technologies' VideoLink.

For most video recording, as well as display on some monitors, some of these devices require an external addition called an encoder that combines the separate RGB (red, green and blue) color signals produced by the Mac into one composite signal that can be fed into a single input.

In Cleveland, for example, if you tune in to the morning traffic report on WJW-TV on almost any workday, you'll see a Mac-generated traffic map fed from Mac to microwave to TV control studio through a Computer Friend's TV Producer Pro video board. According to Jack Callahan, who helped put together the system at Baron Aviation in Cleveland, the TV Producer board's essential job has been to change the station's Macintosh-hosted traffic

Continued on Page 20

Apple says multimedia a natural evolution

Multimedia on the Macintosh is simply the next logical extension of the technology, according to the official view from Cupertino.

"One of the important things for Apple," said Catherine Nunes, Apple group manager for business multimedia, "has always been providing communication tools for people who want to articulate an idea for other people."

Nunes characterized multimedia as "a combination of sights, sounds and motion controlled in the computing environment," with the stress on the last qualification. According to Nunes, Apple is currently looking at multimedia in several broad categories: presentations — slides and overheads moving to interactive presentations; learning and reference; and creativity and audio visual arts "for people who are in [business such as] advertising agencies or creative services."

Catherine Nunes, Apple group manager for business multimedia.

While Nunes said the Macintosh was built as an multimedia machine right from the start, she admitted that several classes of add-ons, such as authoring tools, can help out. "Who can make the highest functionality and easiest to use?" The second category is optical media and storage. "You can have CD and videodisc or you can have a hard disk."

"The third category," she said, "is low-cost, high-quality peripherals."

The Mac is getting all of these items, but the result is more than just a collection of isolated pieces, Nunes said. "We're looking very strongly at infrastructure."

According to Nunes, multimedia is not just a momentary fascination at Apple. "We've been looking at multimedia for two years now. Now we're ready to go out and talk about it," she explained.

"Audiovisual computing controlled in a computing environment has been around for a while in some form. It's important that no one has done it at low cost, no one has made it easy to use. Apple's goal is to bring it down to the individual." — By Steve Rosenthal

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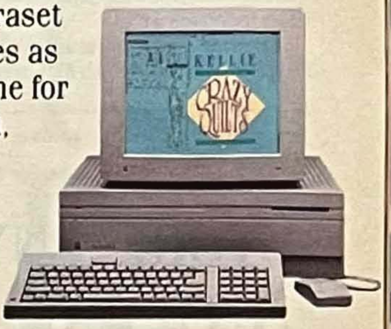

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Continued from Page 16

maps and drawings of interchanges to TV standard format. As an added touch, the station has also started using the TV Producer board to superimpose those maps over images from remotely controlled TV cameras it now has mounted at key traffic-flow points.

Going to slides or film. When you don't require interactivity but need to keep distribution or machine costs down, simple slide shows, synchronized slides with multiple projectors or videotape transcriptions of a Mac display may work well.

Most slide service bureaus have begun to accommodate Macintosh files, and Autographix and Genigraphics have even set up special links to Cricket and Microsoft presentation programs. For synchronized slides, though, you may be better off with a company that has special expertise in that area.

WJW-TV in Cleveland uses Mac-generated traffic maps. Computer Friend's TV Product Pro video board is a key element.

Direct digital transfer. If you're really concerned with image quality, you can go to the video equivalent of what audiophiles call direct digital mastering. Using software and the 2.2-Gbyte tape drive sold by affiliate Genius Inc. as a transfer device, Illusion Software Systems is setting up a service that will let multimedia, video and movie producers make digital transfers between the Mac and high-end Sony D1 digital video production systems.

Hollywood too. The Macintosh will soon be playing a key role in advanced systems meant for longer-length video sequences as well. Seehorn Technologies Inc. will this quarter deliver the first of its Mac II-controlled MIDAS I AND II video production systems to a customer list that includes Apple and Seehorn board member Francis Ford Coppola. The system weaves Mac hardware and 4th Dimension-based software into an edit system that has the power of large commercial units but the accessibility of the Mac. A conceptually similar unit is also being developed by Joan Tierney, a Washington, D.C.-based video producer.

For those who already are doing multimedia on other platforms, much of this won't seem very surprising. As with desktop publishing before it, multimedia on the Mac does more to make technology accessible than break completely new ground. But if Mac-based multimedia creates that same outpouring of energy and creativity that greeted affordable desktop publishing, we should be in for some interesting results. □

Steve Rosenthal is a MacWEEK contributing editor.

HyperCard finds its true metier

Without ever having to hang out at a drugstore in Hollywood or work its way up from local radio in Des Moines, Apple's HyperCard program is making it big in the world of multimedia.

For direct interactive applications, such as in kiosks or public information systems, the program is among the top contenders. Apple itself is one of the biggest users, with interactive stacks ranging from simple building directories to complete executive information systems.

HyperCard has also been applied to more display-oriented applications, such as presentations. Although unaided HyperCard provides only limited drawing and animation capabilities and lacks color output, the program has become one of the preferred ways to produce and control multimedia presentations.

One reason, say users, is the the program's ability to incorporate external commands,which add new functions and run other packages such as MacroMinds's VideoWorks II and Bright Star's HyperAnimator.

HyperCard additonally finds favor as a high-level development environment that allows people to put together complex systems, even if they lack expertise in programming. Using HyperCard, Eli Hollander, a director and filmmaker in Santa Cruz, Calif. is developing a less-than $5,000 Mac-based video edit controller that he believe will rival high end dedicated systems that cost 20 times as much. — By Steve Rosenthal

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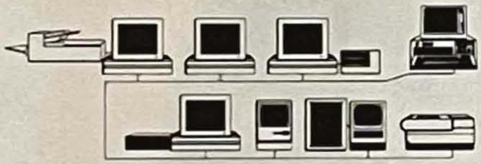

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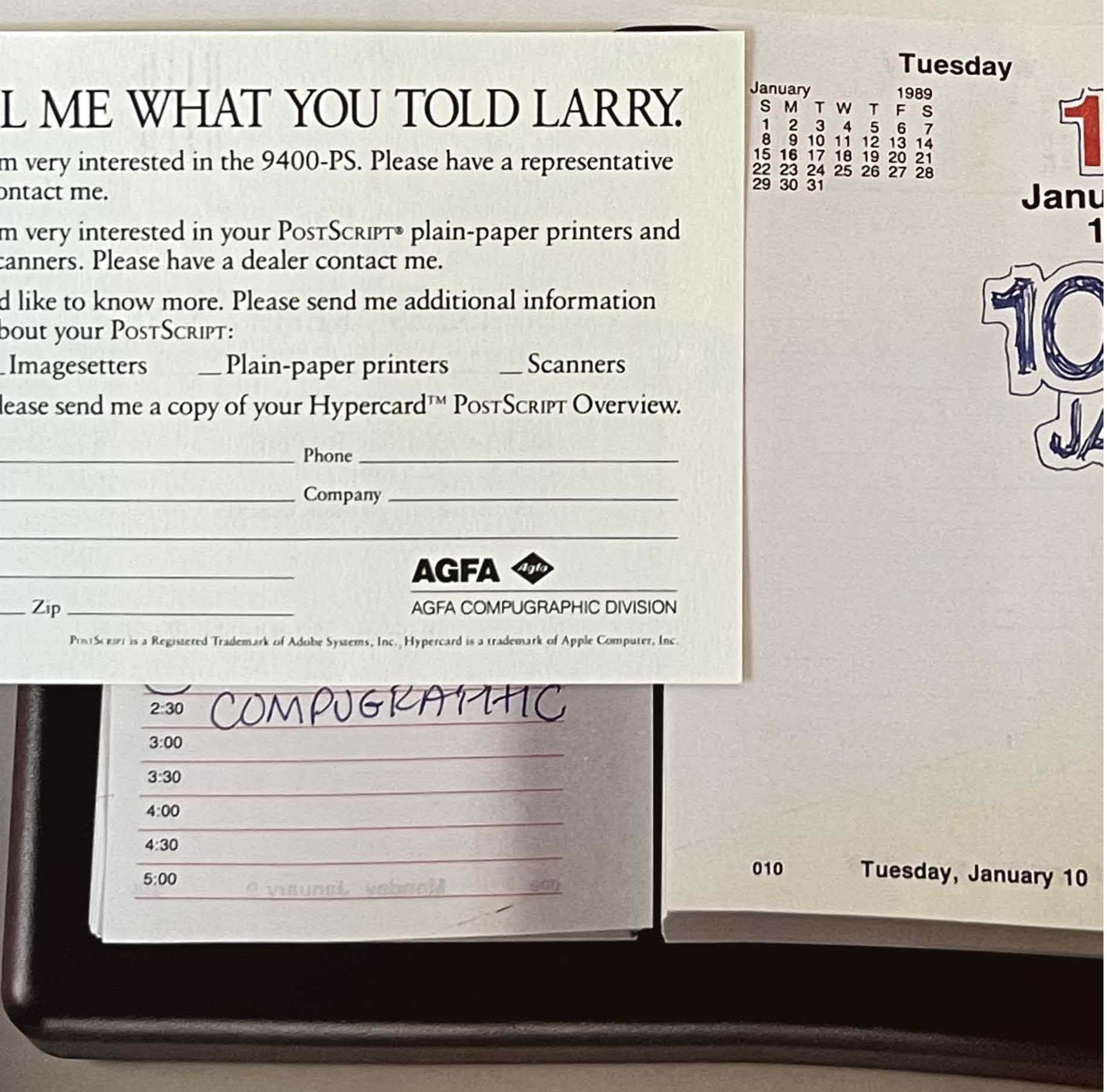

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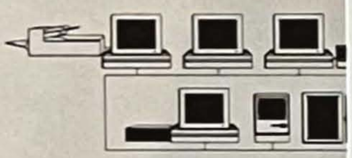

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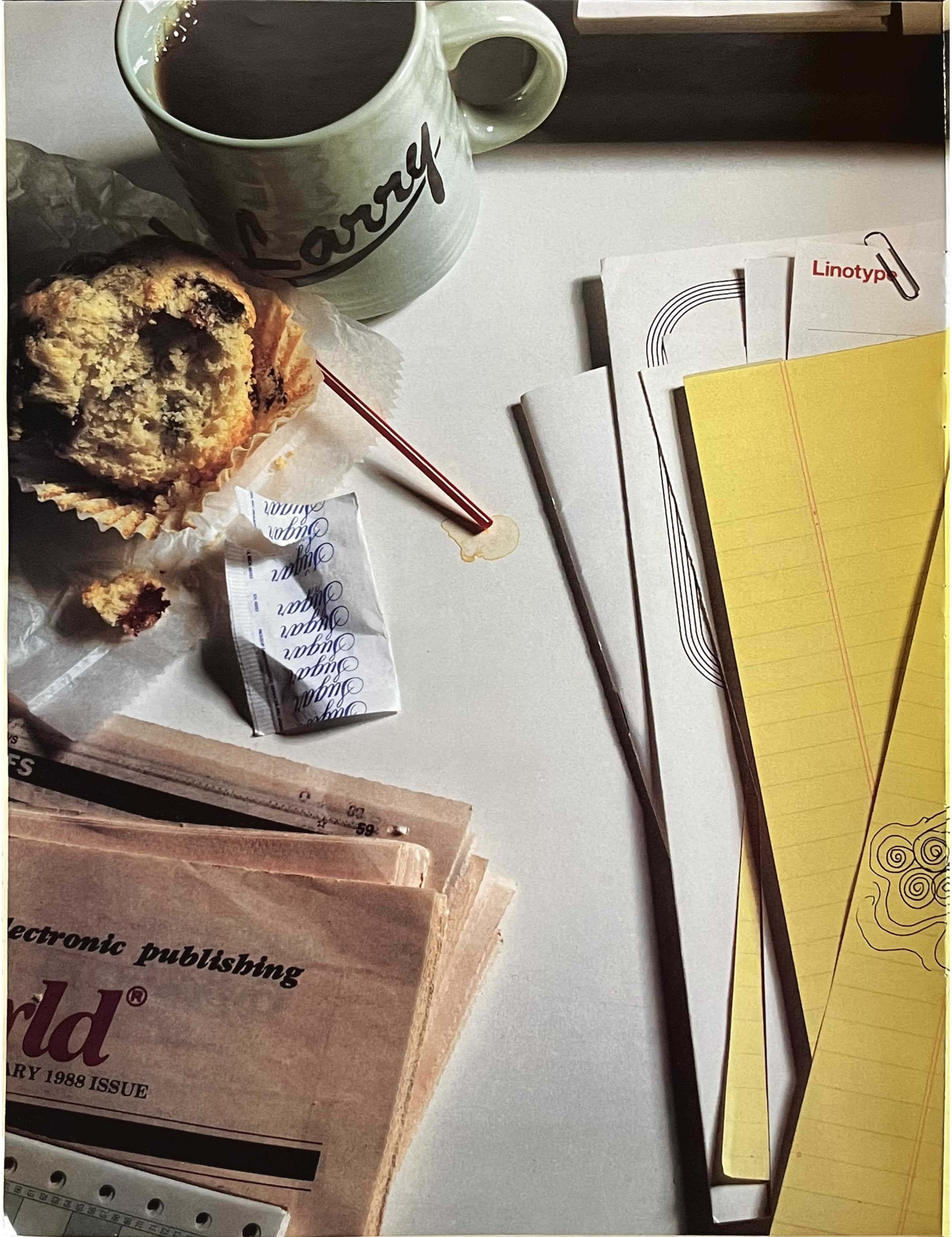
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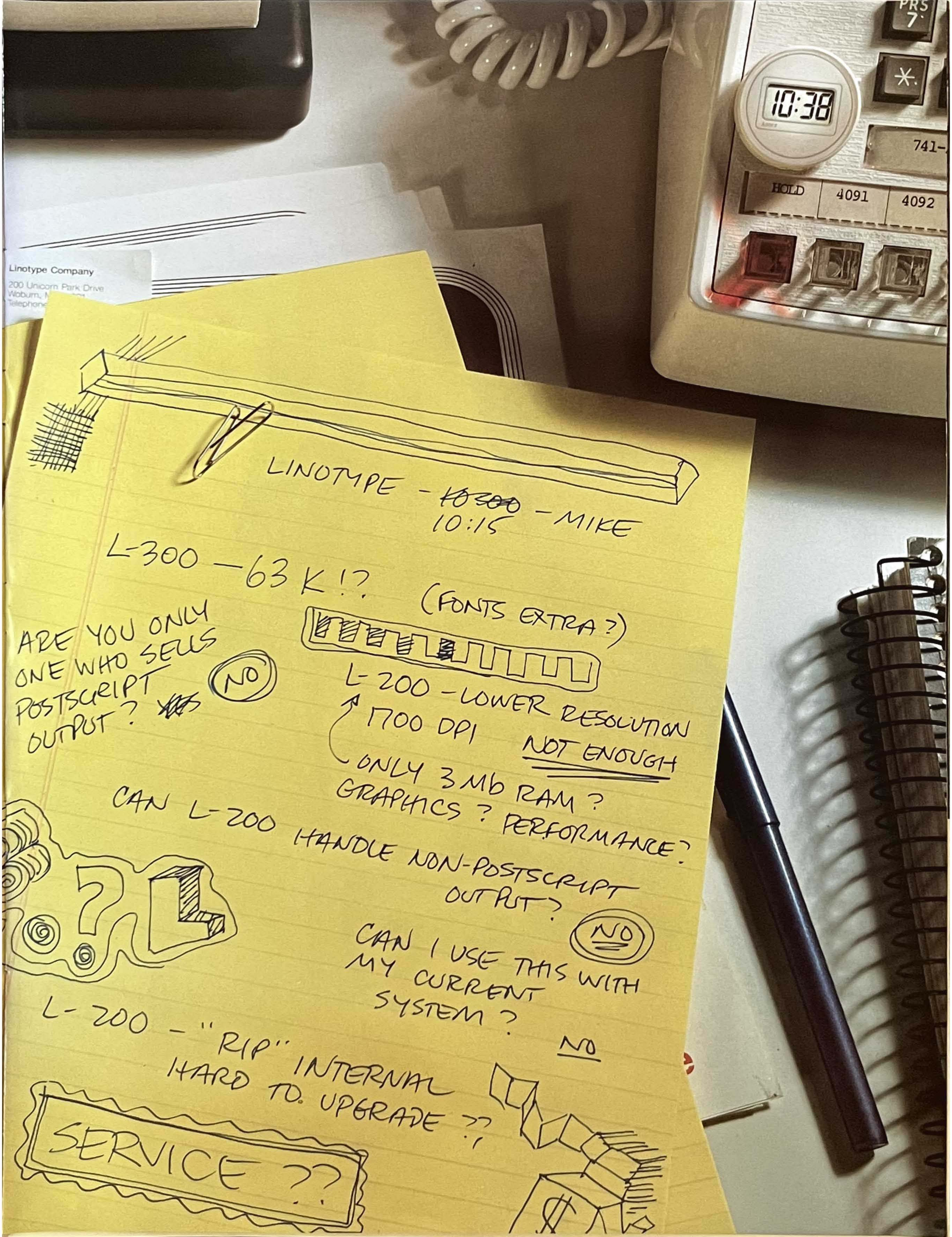

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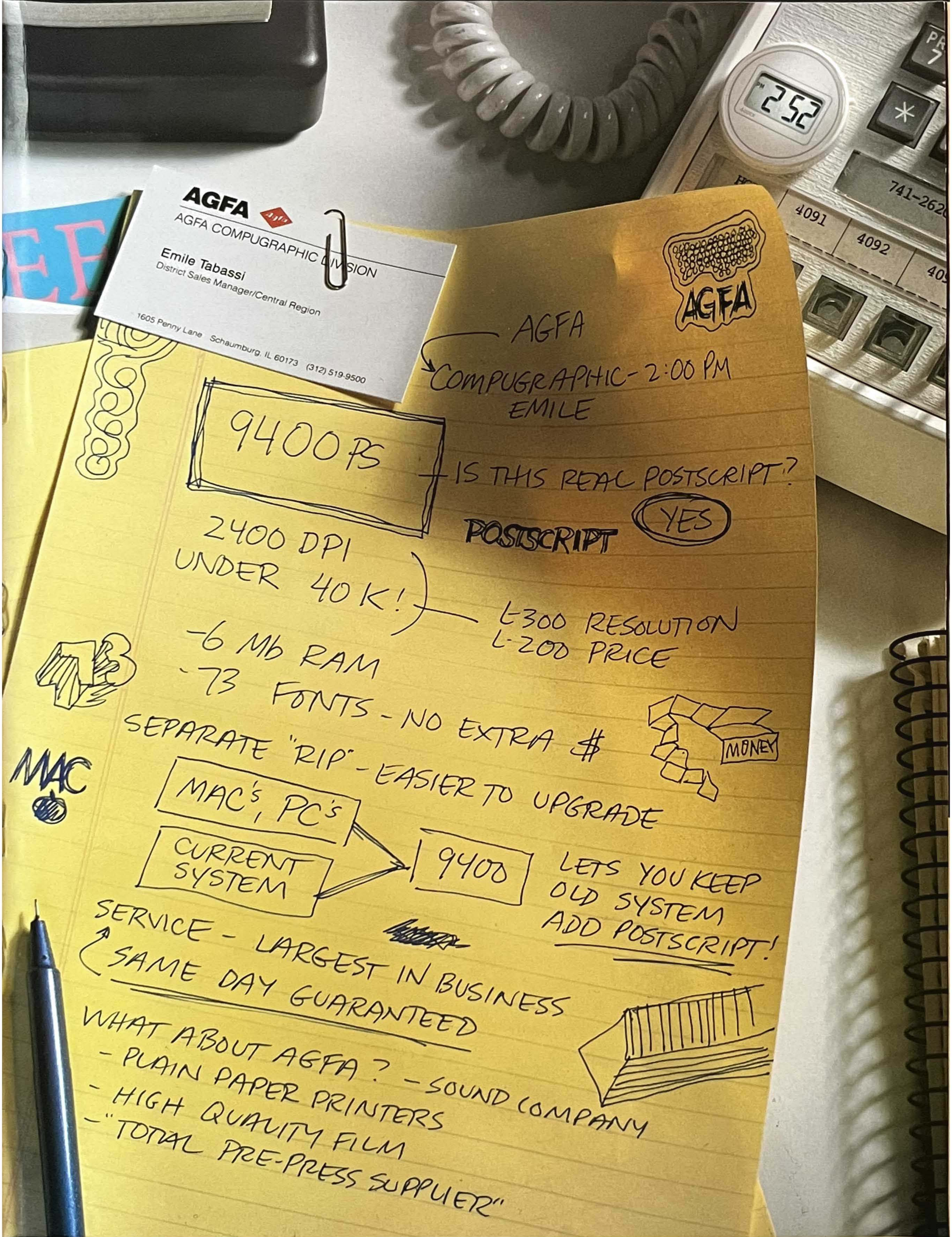

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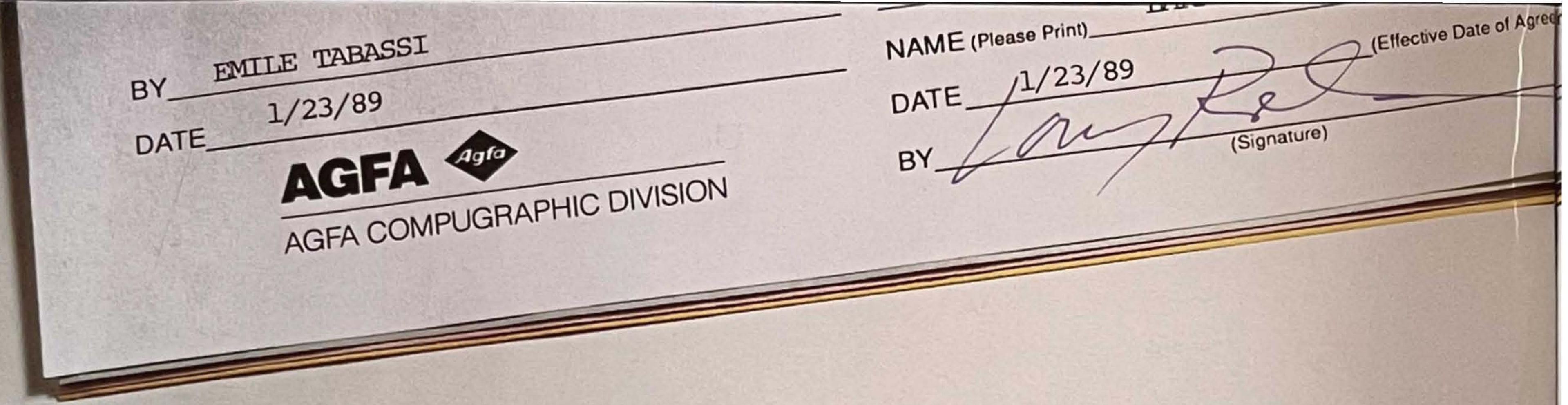

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Like many of you, Larry R. decided it was time to add a POSTSCRIPT® imagesetter to his operation.

So he called in the leading imagesetter vendors—Linotype and AGFA Compugraphic—and listened to what they had to say. He asked a lot of questions. And checked into what their machines could do for him.

Then Larry decided to buy a CG9400-PS POSTSCRIPT laser imagesetter from AGFA Compugraphic.

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Larry was also concerned about throughput, especially for pages with graphics. He found that the 9400-PS's standard 6MB RAM—two times what the L-200 offers—would let him run complicated jobs without lengthy processing times.

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Of course, to run an imagesetter you need to invest in type fonts. But Larry found that the 9400-PS comes with 73 POSTSCRIPT fonts included *at no extra charge*. That's *sixty* more fonts than Linotype gives you.

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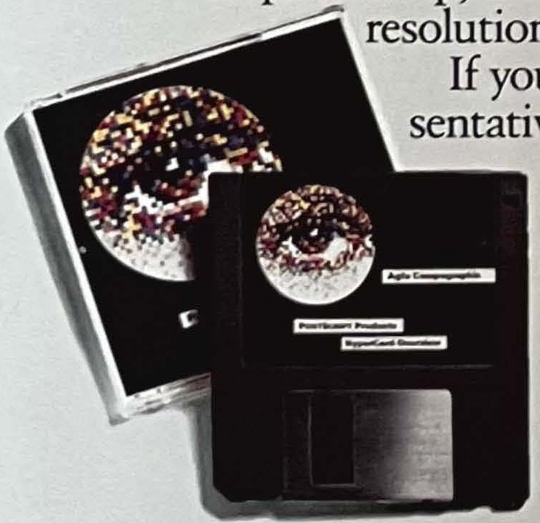

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The song-and-dance Mac

GA looks at four producers busily at work on interactive presentations.

BY JAMIE KRUTZ

The song-and-dance man was one who caught our eye, made us feel good, made us notice him. These days in the business environment, that song-and-dance guy is going electronic. When it's time to put on a show, people are realizing that the Mac can sing and dance.

Video productions in the business community are commonplace and often elaborate; numerous Fortune 500 companies have their own closed-circuit TV stations and advanced video production facilities. Slide shows get expansive — and expensive — when 10 or 20 slide projectors produce a multi-image display. Now enter the computer as competition with these other media.

More and more video producers are turning to the computer, and computer producers are finding they can bring real-world video into their computer productions. In a variety of configurations producers are using pictures from optical disks; capturing videotape images; transferring tapes, videodiscs, flat art and photographs; and combining them with CD-ROM sound samples, MIDI synthesizers and real-world noises recorded into the Mac. Many call this song-and-dance multimedia.

What's in a name. According to Jim Armstrong, Apple's Multimedia Evangelist, multimedia means using "more than one medium" easily and interactively for the dissemination of ideas through "non-print publishing."

Some producers of multimedia productions, however, choose differing definitions.

"I've never used [the term multimedia] for what I'm doing," said Josh Rosen of Meta Language of San Francisco. Rosen prefers to call himself a "hypermedia designer." "Multimedia reminds me of 10th-grade filmstrips."

"I think multimedia is a bad word to use," said Marney Morris, president of the Palo Alto, Calif.-based design firm Animatrix. "Interactive multimedia is a lot closer. As you look at the development of communications, the significant advance with computers is interactivity."

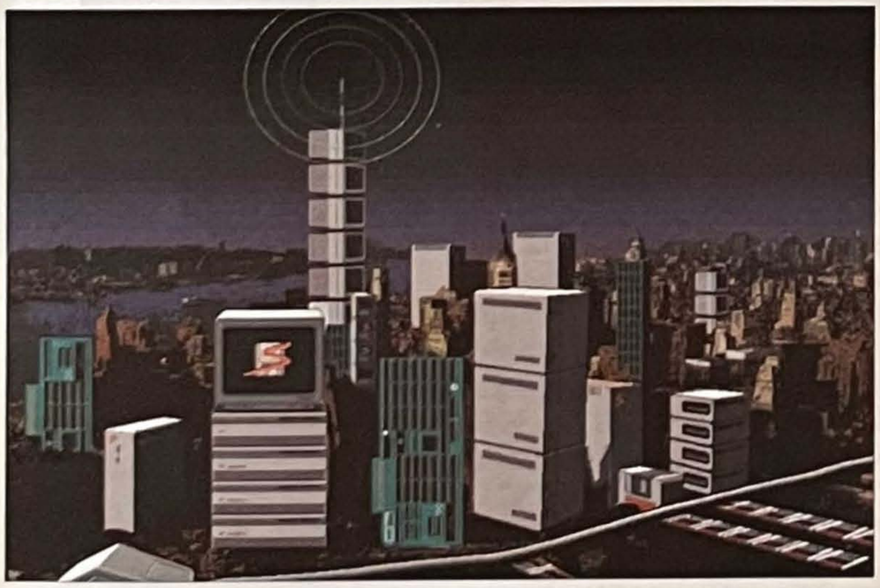
Marc Canter, company chairman and product visionary of MacroMind, said he likes to add "sizz" (as in sizzle) to presentations. "You have to have a good buzzword, and I don't think it's been answered yet." Canter also offered the terms "desktop video, interactive learning and business learning" when describing what can be done with VideoWorks II.

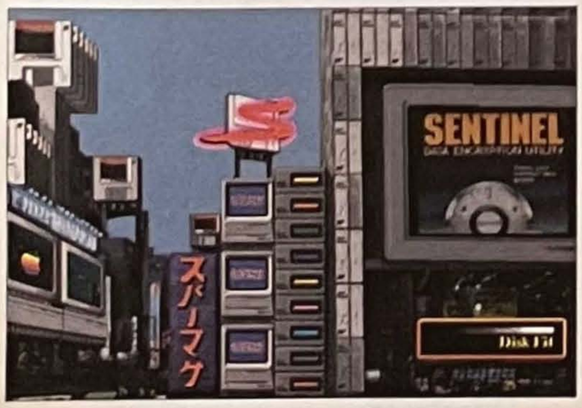
MacroMind not only makes VideoWorks II and other software for Macintosh animation, it is also a production company that creates interactive presentations for clients.

Let's dance. There are always those who are first on the dance floor. In the computer world,

Continued on Page 24

CHUCK MACKE/PICTURE GROUP

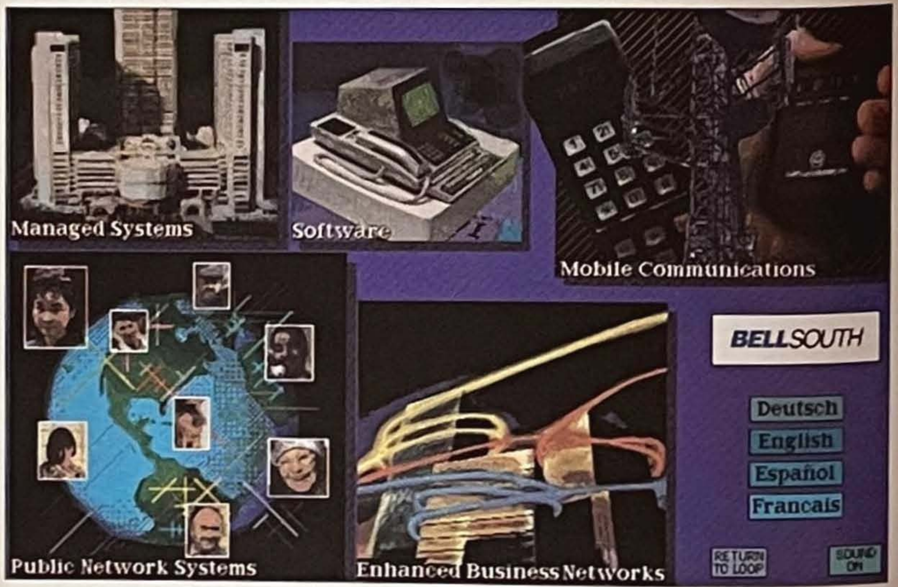


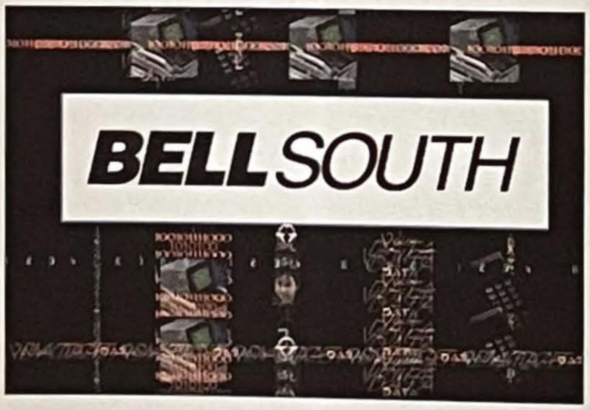


In the SuperMac vision of New York City, circuit board buildings glimmer as floppy disks fling themselves into their drives. The antenna emits circles and the mouse cable pulses.

With a horizontal wipe up from the bottom, ordinary Tokyo buildings are transformed into SuperMac monitors, disks and Macintoshes.

Marney Morris, president of Animatrix, top.

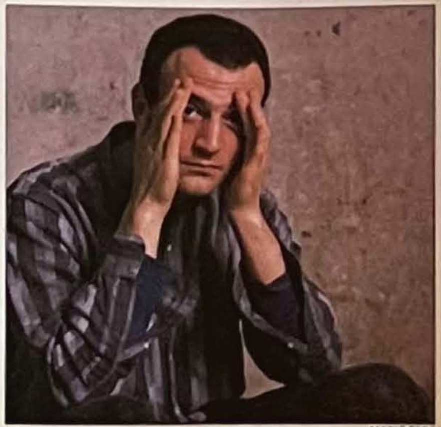




Above, the BellSouth presentation was produced with VideoWorks Interactive. This is the interactive screen that follows a lively opening animation; you choose which area of communications you wish to explore and in which language.

"BellSouth" opens with a hand holding an optical fiber. Light flickers to the end of the fiber, becomes a circle and then a rotating planet. Tiny pictures of communications hardware and text emanate from the planet in cascading patterns. The planet disappears and the elements coalesce into a box that rotates and becomes the BellSouth logo. A wipe effect is used to start the loop again; a mouse click brings you to the menu above.

Stuart Sharpe, producer of the BellSouth demo.



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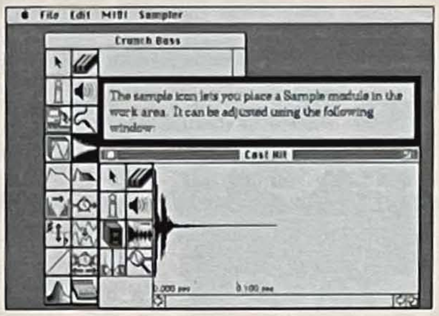
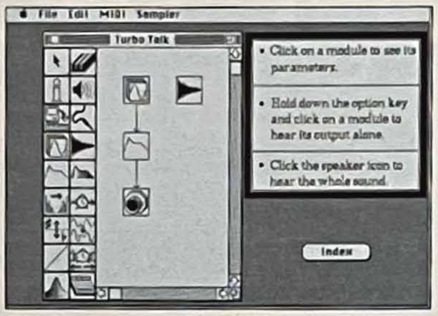
ED KASHI

Josh Rosen, producer of "TurboSynth" demo.



The sample icon lets you place a Sample module in the work area. It can be adjusted using the following window:



- Click on a module to see its parameters.
- Hold down the option key and click on a module to hear its output alone.
- Click the speaker icon to hear the whole sound.

(Right, above) You click on representations of TurboSynth's icons to see what they do. In the sample icon, the demo opens a window that simulates the actual program. Text explains the icon's purpose.

(Right, below) TurboSynth lets you build sounds by connecting synthesizer modules graphically on screen. The demo includes digitized audio illustrating how modules affect the sound. By clicking on a module, you can hear what it does.

Continued from Page 22

their counterparts are the producers who for several years have been making presentations with existing elements of interactive multimedia, people eager to use new technologies.

Animatrix is "an interactive design house that does computer animation," said Morris. The company's client roster includes Aldus, Lotus, Microsoft and Apple. The familiar guided tours that come with the Mac SE and Mac II are Animatrix-born.

"We tend to leverage our jobs so that they are pushing the technology for us one way or another," Morris said. "We're not only getting paid, but we're learning something new we can apply to what we're doing."

One Animatrix project, shown here, was a trade show demo for SuperMac Technology, which wanted to highlight PixelPaint and big-screen color monitors. The company was willing to give Animatrix a lot of leeway; Morris and her crew flew with it. This production takes the viewer on a tour of international cities from a distinctly SuperMac perspective. Starting from the trade show site in San Francisco, you travel to New York; Sidney, Australia; Tokyo; Paris; and London. In each city, SuperMac products take over the landscape: In New York they become the skyscrapers, in London they turn into barges that float down the Thames. A section added for the Macworld Expo in Boston last August has astronauts carrying SuperMac products on space walks.

The demo runs on a Mac II with five Mbytes of RAM and a 19-inch monitor. Many images were scanned in with the Howtek Scanmaster 35 color scanner, and painting was done in PixelPaint. The astronauts were captured with the use of a Data Translation frame-grabber board from a videodisc of NASA footage. An original soundtrack by Greg Shaw runs on a separate audio tape. "We started the project two months before January 1988's Macworld and finished it one hour before the show opened," Morris said.

Morris works with clients and does the creative direction. Her team goes through a design phase, then "gets things on-screen as quickly as possible." They have more design meetings, creating alpha and beta versions before arriving at the final product. "You have to be compulsively fussy to do a good job," she said.

While Animatrix uses VideoWorks Interactive and VideoWorks II for their animation, Morris said: "We see a conflict with MacroMind being both a production house and a supplier of tools to other production houses."

The firm also uses HyperCard with its own external commands (XCMDs) and is developing proprietary in-house software. Animatrix is currently working on projects using the new possibilities of 24-bit color, including a demo with Digidesign.

"We're using sound and graphics together to demonstrate state-of-the-art technology, their sound, our graphics and 24-bit imagery.

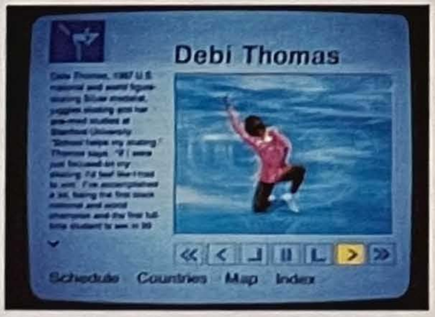
"Right now things move pretty slow with 24-bit animation. We're doing a lot of animation tests. When we figure out what's going to work the best we'll leave a lot back in the archives. It's going to be fun," Morris said.

European dance craze. BellSouth International had a challenge: to come up with an exciting multi-language presentation for a big European trade show.

"We looked at a lot of equipment and talked to a lot of people about developing software and what they could do with it," said Pat Hammerstrom, director of marketing communications for BellSouth International in Atlanta. "Finally we spoke with Apple and were looking at buying some Macintoshes. They told us about Stuart Sharpe."

Sharpe, a New York-based Sound Vision designer for MacroMind, said: "[BellSouth was] going to use an IBM [PC]. I went down and showed them what we could do." His demo impressed BellSouth, and the company assigned him to the project. Within two months he completed the animated presentation, including the music that he composed. His primary software tool was VideoWorks Interactive, a version of VideoWorks II with a scripting language for programming interactive capabilities, available from MacroMind in a prerelease version for $500 plus licensing fees.

The demo, pictured here, opens with an eye-catching animation loop: Colorful images of telecommunications hardware and text swirl by. Four Mac IIs were set up in the trade show booth where BellSouth walked attendees through the presentation. BellSouth selected the product line that the prospective customer was interested in, such as management systems or mobile communications and chose to see and hear it in German, English, Spanish or French.



"I call it an animated brochure," said Sharpe. "They have tons of literature and brochures, and I put that all on screen."

"It is so professional, and we have gotten so many compliments," Hammerstrom said. "I've kidded the people at Apple that we need to get some sort of fee. Every time I go to a trade show, people are asking about the software and the Macs. I think I'm selling more Macs than telephones."

Interactive music. Meta Language's Rosen has turned his musical and visual interests into his current career as a hypermedia designer. With a 1-Mbyte Mac SE, HyperCard, VideoWorks II, Adobe Illustrator 88 and Aldus FreeHand, he creates demos for Mac software and hardware companies. "Once people see one of these working they really start realizing that this has an amazing potential," he said.

One of his projects is an interactive demo of the program TurboSynth, for Digidesign. The graphically oriented TurboSynth turns the Mac into a point-and-click modular synthesizer. It generates sounds as digital files that professional sampling instruments can use. The sounds can also be played back internally in the Mac SE or II with 16-bit fidelity using Digidesign's $1,295 Sound Accelerator card.

After a brief introductory VideoWorks animation, the demo lets you click on text describing areas you can learn about. One part lets you build patches of music. You choose a patch and watch the animated demo build it. Then by clicking on the icons representing the synthesizer components, you see and hear how the modular system creates the sound.

Initially, TurboSynth appears complicated, which makes it a perfect candidate for this type of demo. You can explore the program's features at your leisure, in the order you choose.

"Part of it is there's a one-shot cost to them, and they put it out on something like PAN [Performing Artist Network] or some other bulletin board," Rosen said. While it will take about 45 minutes to download, the information is highly accessible.

Laying down the beat. Rosen creates the music and sound effects for his Mac projects in his MIDI studio. He then records them into his Ensoniq EPS sampler which is connected to the Mac. The sounds are imported into the Mac using Blank Software's Alchemy program. Rosen has also used Farallon's MacRecorder, but prefers EPS because it does a better job of converting analog audio into the digital file.

Either method nets standard Mac eight-bit sound resolution, which falls short of good fidelity. But Rosen is also working on a HyperCard demo of Digidesign's Sound Accelerator card, and he's excited by what it will allow him to do. "They've been farsighted enough to make sure that it can play 16-bit sounds through HyperCard and through VideoWorks Pro [now MacroMind Director]. That answers the sound question. We'll have no more complaints about sound," he said.

Interactive video. Bonnie MacBird, president of Los Angeles-based Creative License, a film and video production company, said: "What we are about as a company is a creative team that creates the most effective video and film messages and stories."

One client is Apple. Last February MacBird wrote the script for "HyperCard 1992," a video simulation of Apple's vision of multimedia in 1992. It was produced by San Francisco-based Kenwood Group under the direction of Apple's Michael Markman, creative director for video production.

The simulation depicts a HyperCard stack with detailed Olympics data. What propels it to 1992 is the liberal use of real-time, full-color video: long clips of slaloming skiers and thrilling scenes of Olympic skaters such as Debi Thomas, complete with orchestrated music. A semi-intelligent "agent" named Phil comes alive to guide users through the stack.

While the video shows the future, Creative License is creating multimedia presentations

Continued on next page

(Left, above) In Apple's HyperCard 1992, for which MacBird wrote the script, a stunning video clip of Olympic skater Debi Thomas teases us about future capabilities of multimedia productions.

(Left, below) Creative License produced a multimedia presentation demo of its own works to show clients. The company used HyperCard and videodisc clips.

MICHAEL GRECCO/PICTURE GROUP

Bonnie MacBird, president of Creative License.

Continued from previous page

now. "We had a breakthrough with the ability to talk to a videodisc using HyperCard," said MacBird.

MacBird and her partner, director Jim Shasky, prepared a Creative License promotional demo to show prospective clients. They put clips from video productions done for Apple and other clients onto a videodisc.

Because of the flexibility of HyperCard and the random-access nature of videodiscs, they rearrange and change the presentation to fit different audiences. They use the Voyager Video Stack to control the videodisc player.

"I'm not a hacker; I don't spend Friday night in front of a computer," MacBird said. "HyperCard has been my door into it. It's easy to use, and it's powerful."

Paying the piper. The cost of these productions varies. Rosen reported that for something that's "really small and quick" like the Digidesign demo, the cost is usually between $1,700 and $2,200. Morris said her company charges from $10,000 to $50,000, and Sharpe said projects the size of the BellSouth undertaking can cost in the $50,000 range.

It can cost from $500 to $1,000 to press a videodisc, not including the cost of producing the actual video material. The cost to produce video for a disc can vary depending on the script and production circumstances, but a rule of thumb for industrial video costs is a rate of $1,000 per finished minute.

Dance marathon. As a song-and-dance man, the Mac is just warming up. Necessities include erasable optical disk storage, better sound capabilities, 24-bit color, video support and software to take advantage of all of that is just starting to be glimpsed.

"I think the gap [between computers and film/video] will narrow over the next couple of years," Rosen said. "It's a question of how realistic the laser media becomes and also how video compression goes. I wouldn't be that interested in it if I didn't think that, powerwise, it was going to broaden out."

It will, however, take more than improved equipment for the Mac to really kick up its heels. It will also take those creative partners to make the Mac sing and dance.

"1989 is going to be a great year for sound and graphics and animation," Morris said. "People who didn't have access to becoming creators of interactive media are going to get into it. That's the revolution." ☐

Jamie Krutz is a film and video composer, editor and director.

Tech limitations

The more colors you put on screen, up to 24-bits per pixel, the better your images can look and the more memory you'll need. Should you want 16-bit compact disc-quality sound and use, for example, Digidesign's Sound Accelerator card, you'll create huge sound files and need that much more memory as well.

As you try to play your animations and sound in real time, you'll notice that the Mac just isn't fast enough to move those animations smoothly.

You could improve the smoothness of your animations somewhat by using fewer colors, by animating fewer and smaller objects, and by using eight-bit sound or no sound at all. (But then is it multimedia?)

However, what's really needed are video and audio compression schemes and coprocessors that can generate sound and animation without depending much on the CPU. Remember as well that eventually there will be faster Macs.

MacroMind's Accelerator makes VideoWorks run faster. Its drawback, however, is that it makes small files huge. A 400-Kbyte file can become 6 Mbytes.

The way the Mac writes to its screen is a problem. Images can appear to break along horizontal lines as they move.

You need a storage medium that's as portable as floppies, can store hundreds of megabytes and is dependable and cheap. Read/write optical drives look promising.

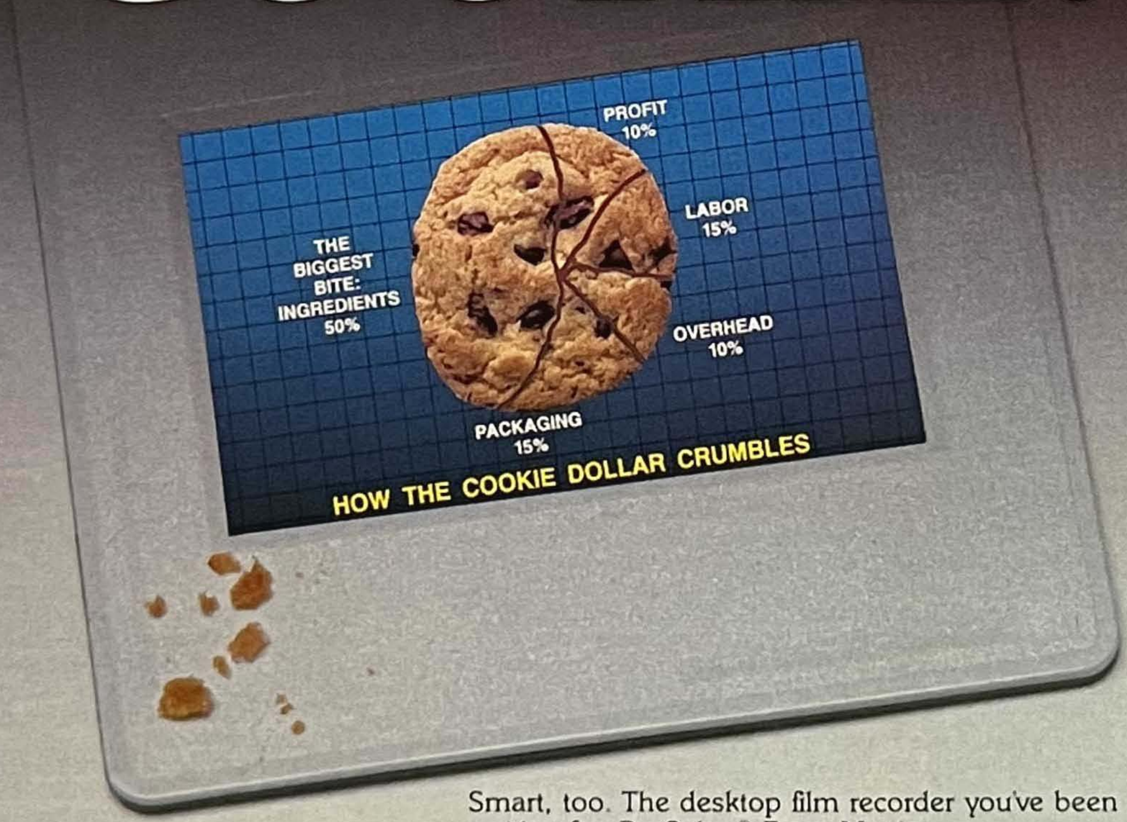
Speaking of portable, the Mac II is not. What about a color Mac that's easy to take on the road?

After you've transcended memory and speed problems and have a stunning production, you may want to show it on a big screen. Much needs to be done in that realm, and one promising development is the Kodak LC500 LCD projector.

There's a lot of demand for video. The good news is that HyperCard control of videodisc players works well; the first efforts to play back video on the Mac screen were shown at November 1988's Comdex show. The ideal would be video in/out ports on the back of every Mac. Apple may be waiting for digital video to reach the mass market, but that won't happen this year.

We need more and better software as well. Right now there's a learning curve with animation software and a long way to go to make sound track production within the Mac easy and flexible. — By Jamie Krutz

SHARP COOKIE.



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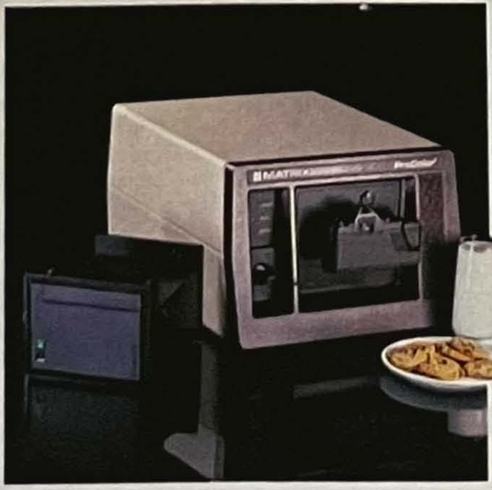
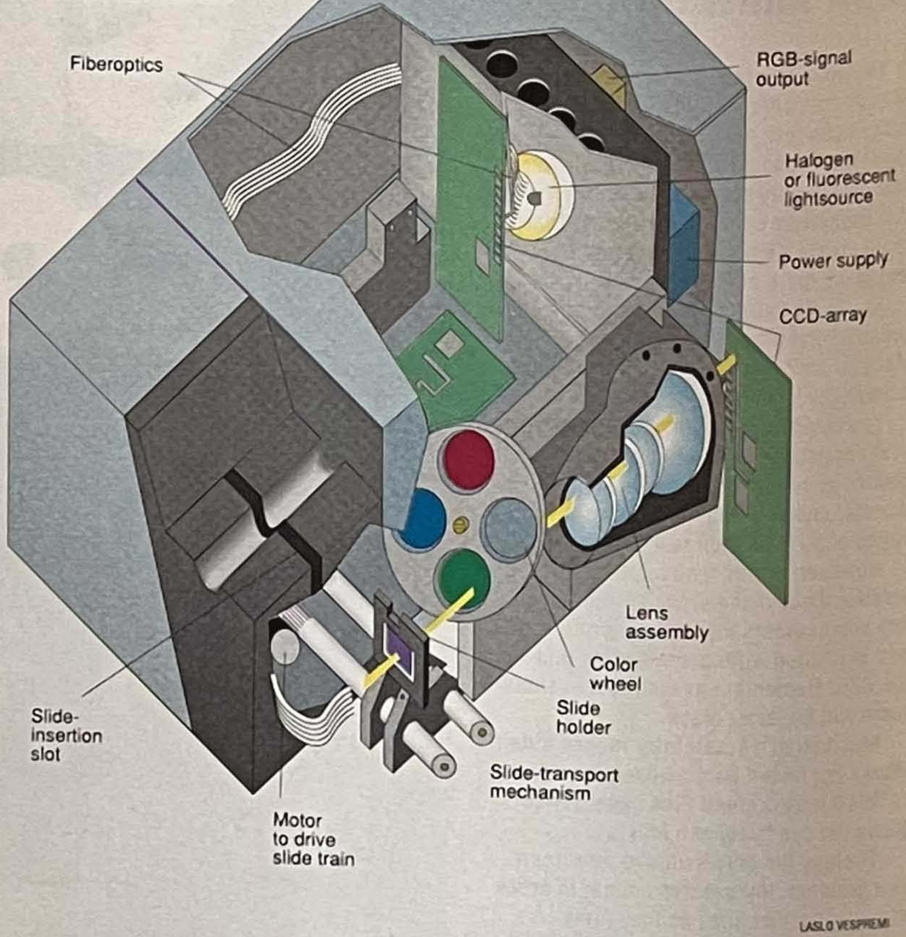


35mm to print: All on the Mac

BY LASLO VESPREMI

INSIDE A 35MM SLIDE SCANNER



Color separation on desktop systems has been a hot subject of debate in the past year. Much of the discussion revolves around the ability of the hardware and software to work effectively with the amount of data required. Another concern regards the need for specially trained individuals to operate the equipment. Will desktop systems allow publishers to perform all production tasks, including color-separations, in-house?

MacWEEK is actively working on answers to these questions. We're experimenting with hardware and software, we have highly skilled technicians, and our goal is to ship press-ready film to the printer.

This article is the first of a three-part series that traces the evolution of a slide through the scanning process, image manipulation and finally its color separation. The series follows actual work by technical people in MacWEEK's production department, and we share with you insights gained and some practical advice in using the technology.

While this article focuses on the Barneyscan and the Howtek Scanmaster 35, it looks at what is common among slide scanners, what you need to know and what the general pitfalls are.

Slide scanners. There is a growing number of color scanners on the market to choose from. They can be categorized by type, flatbed scanners and transparency scanners; and by price, the very high-resolution scanners from Hell, Crosfield and Scitex that cost $200,000 and up and the more affordable 35mm slide scanners that sell for about $10,000. This article looks at the last group. For the day-to-day production of newspapers, magazines and catalogs, most transparencies are in the 35mm format. In fact, about 60 percent of all photos in MacWEEK began as 35mm slides.

Currently there are three 35mm slide scanners for the Mac: the Barneyscan from Barneyscan Co., the Scanmaster 35 from Howtek, and the 35mm scanner from Truvel, which was not available to us. Other companies that have announced Mac versions are Eikonics (Kodak) and Nikon.

What to look for on a slide. Looking closely at the slide is an important first step. Your adjustments for exposure, sharpness and brightness depend on exactly what you see.

- Good single colors. Both scanners allow some kind of preview of the individual colors in the computer's RGB (red, green, blue) format. Each color should give good detailed information. Look for good contrast. If individual colors look flat on the screen, chances are that the sum of the three will look flat as well.
- Sharpness or contrast. Both scanners can scan sharp or normal. The sharp scan, which is adjustable in increments, allows the software to increase value differences on borders between two adjoining areas of different color or brightness. Unfortunately, it also tends to pick up and emphasize noise, such as dust or irregularities in an even field like the sky. One way to avoid this is to scan in normal mode and sharpen only selected areas later.
- As mentioned, slides attract lint and dust. It is a good idea to wipe them with antistatic prior to scanning. Failing to do so can result in intensive retouch work later.

How scanners work. Scanning is not just a matter of slipping a slide into a box and waiting for the image to appear on the screen. The first step is to calibrate the scanner, which means adjusting it for optimum performance.

The calibration procedure is different from scanner to scanner but serves the same end: to adjust the driver software to the state of the hardware, which can change with, for example, the temperature of the bulb or the state of the transport mechanism.

Howtek scanner users need to calibrate the machine each time the scanner is turned on; it takes about two minutes. Barneyscan recommends calibrating its scanner once a week, although if the scanner is moved, a calibration is always recommended. Full calibration on the Barneyscan might take 20 minutes or more, although the recommended partial calibration takes only three minutes.

Calibrations for either scanner are done with calibration slides supplied with the scanners, an opaque black and an empty frame for the Howtek and a five-gray stripped for the Barneyscan.

Once a slide is inserted in a scanner carriage, it slowly passes in front of a charge-coupled device (CCD) array. The array is made up of either 1,024 elements (Barneyscan) or the higher resolution of 2,048 elements (Howtek) that act as independent light detectors. A number of optical lenses set between the slide and the array ensure optimal focus. In addition, there is the all-important color filter wheel that contains four filters, one for black and white and the other three for red, green and blue. The slide will pass either once in the front of the CCD array for the black-and-white image or three times for separate red, green and blue readings.

As a color image is moved in the front of a single element of CCD, the element captures and transmits the level of light emitted by its pixels. To gain a 24-bit image required for high-quality output, the same pixel passes three times in the front of the CCD and a different color filter gel (red, green and blue) to extract a total number of 24 bits (three times eight) to form one pixel.

The scan takes one to two minutes for black-and-white images and up to five minutes for color ones. Once scanning is finished, the images can be saved in different file formats, such as TIFF, in either eight-bit or in 24-bit format, or in PICT2.

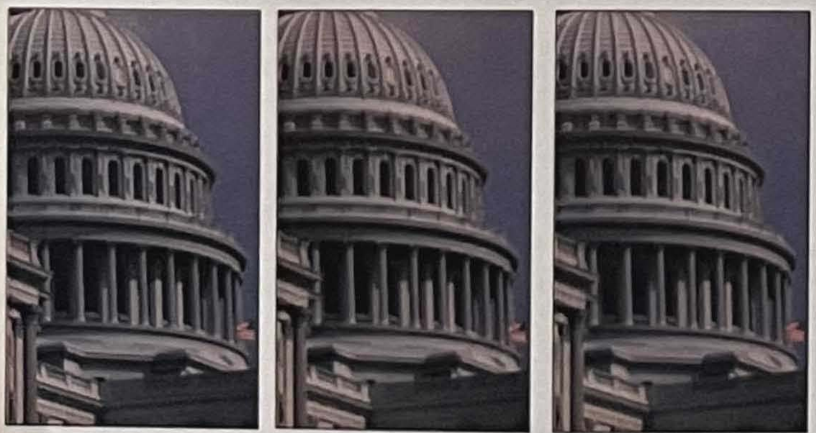
Performance. Several factors affect the performance of the scanner. Resolution depends to some extent on the number of CCD elements, as more elements aimed at the same amount of surface tend to pick up more details. Barneyscan has 1,024 and Howtek 2,048 element CCD arrays. New scanners coming to the market will have an even higher number of elements. The Nikon scanner will employ a 4,096-element array, while an upcoming scanner from Kodak will have an array of more than 6,000 elements. On the down side, as the number of the elements increases, so does the file size of the output.

Light source. Another difference in performance could be the type of light source used to illuminate the slide. Fluorescent light, used by the Howtek, is colder and therefore the emitted spectrum changes less with the increase in temperature. However, it is harder to color correct its bluish hues.

The Barneyscan employs a quartz halogen bulb, a warmer light, that is piped via fiber optics from the rear to the front.

A problem that still needs to be corrected

Continued on Page 30



Details of the same slide were scanned in at, from left, 72, 150 and 300 dpi. They show that higher resolution or larger file size is not always needed to achieve good results. The respective file sizes were 150 Kbytes, 400 Kbytes and 2.5 Mbytes.

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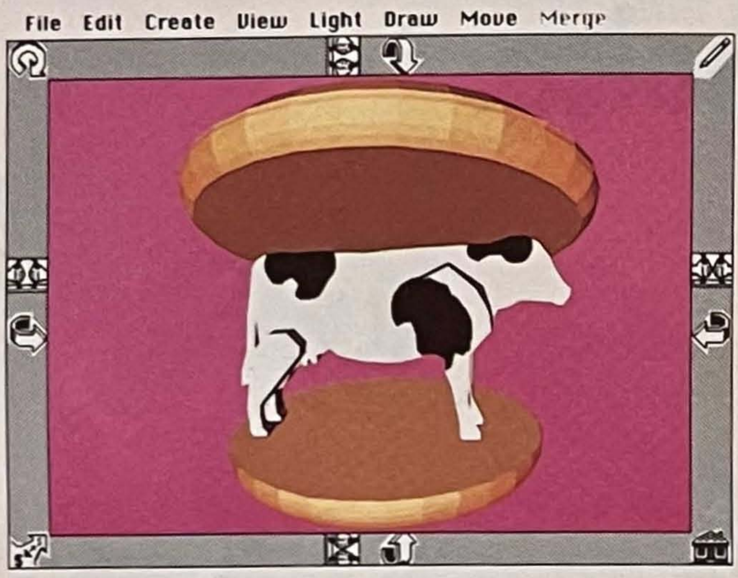

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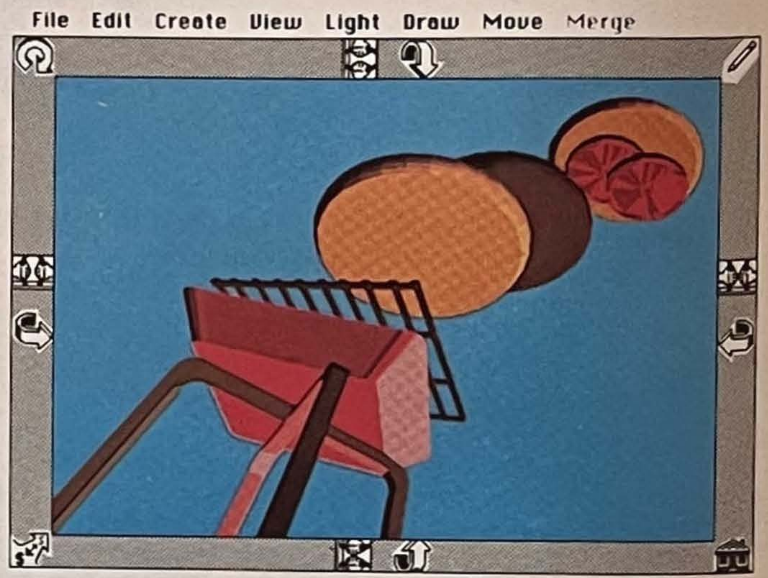

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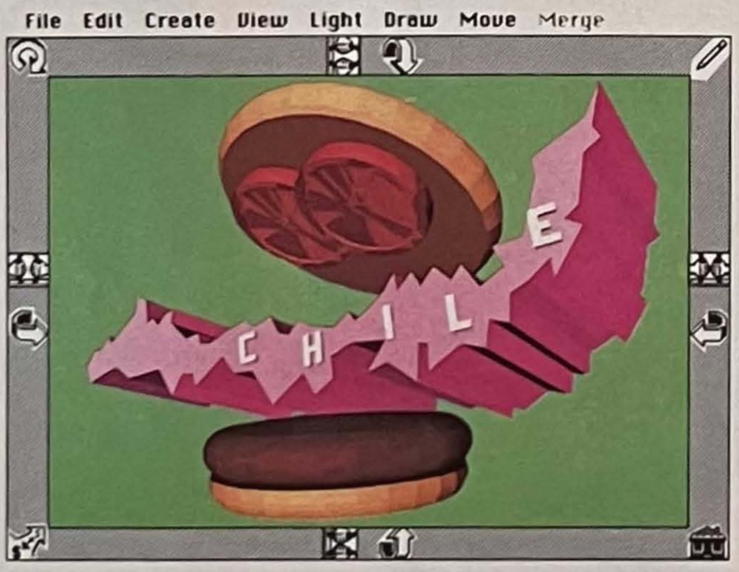

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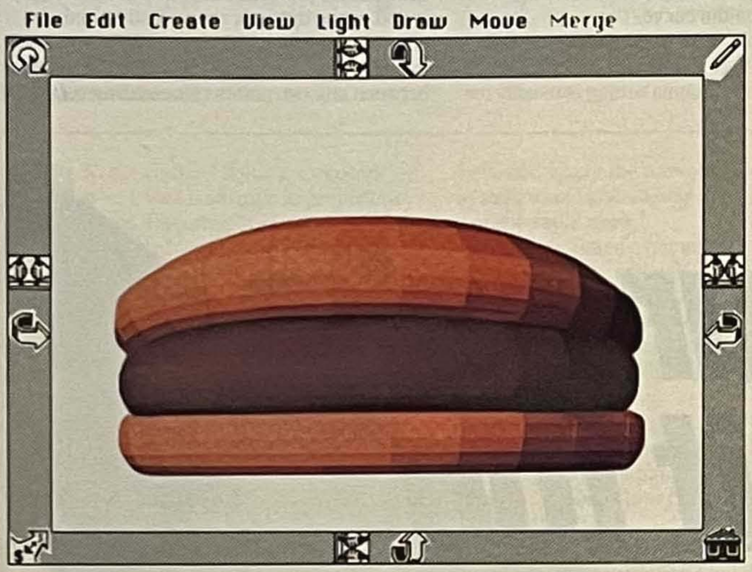

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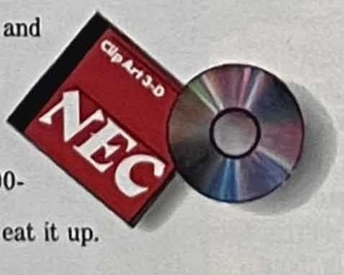

NEC

Continued from Page 26

is the even transport of the slide in front of the CCD array. Also, the scanner needs to focus clearly on the slide to pick up as much data possible. The Barneyscan has an adjustment knob for focus; the Howtek has a fixed focus.

Driver software. Finally, don't underestimate the importance of the driver software. The software not only allows the scanning but provides ways to correct for deficiencies in the slide. Exposure control can help to correct for brightness and details. The gamma correction will effect your final image as well. Although both Barneyscan and Howtek software allow additional color editing after scanning, the Barneyscan's XP-module offers a much more comprehensive set of editing tools to alter the image prior to saving.

What can go wrong? The brightness value can give you trouble. An image can end up looking either too dark or light, but this can be adjusted with the brightness setting or the gamma setting. While the brightness value adjusts overall color by uniform percentages, the gamma correction works on a curve so that different parts of a picture are affected by their position on the curve.

It helps to play with these features to find out how they affect a particular slide. Although the default for the gamma setting is usually for 100 percent (or 1.0), you cannot necessarily hold it through separation and print because the slide's dynamic range from light to dark is much greater than the printed medium's. However, in slides with great differences between light and dark in which you want to hold details in the light areas, you may be tempted to increase the gamma setting. After the scan is finished, the gamma is reset and the picture is brightened, in an image-manipulation program like the Barneyscan XP, Photomac or LaserPaint's paint module. What might happen is that as the dynamic range is stretched, certain colors might break down. When you add to the gamma curve, you increase the distance between any two points representing colors. At some point the curve will become larger than available information and the color will break, causing visible lines on the image.

Output size. The important thing to remember is that you need a lot of storage for all your scanned slides. Furthermore, you should keep the final print size in mind. If the intended print size is 2 inches by 2 inches printed at 133 lines (average magazine print), you might need to save only a resolution of 500-by-500 pixels, which would create a mere 850-Kbyte file, just a bit too large to fit on a 3.5-inch disk. The conventional thinking is that you need at least two pixels for each line printed, so in a 2-inch-wide print the number would be 2 (inches) multiplied by 133 (lines) multiplied by 2 (pixels). This equals 532 pixels for one slide. To get the total file size, width is multiplied by depth and then multiplied by three for the three colors (RGB). In our example, the arithmetic would go like this: 532 (width) multiplied by 532 (depth) multiplied by three equals 849,072 bytes or 850 Kbytes.

To scan or not to scan. Definitely scan. It is a sensible way to get a color image input with a manageable file size. It never ceases to amaze us how much detail the scanners picks up from a 35mm slide. Viewing the scanned images on a 24-bit RasterOps screen shows the true resolution power of these precision scanners. Although slide-scanning has not yet reached perfection and is not meant for the casual user, experimentation by someone who has been trained can begin to yield some noteworthy results. □

The good, the bad and the ugly

Since desktop scanners have their limitations, it is important to use well-exposed transparencies. Because a photographer can't always effectively control the light on locations, obtaining a perfect slide each and every time is impossible. Still, you should select slides that don't have a very wide dynamic range, that is, no areas of extreme light and dark on the same frame. Slides that are evenly dark (underexposed) or evenly light (overexposed) can be used because they don't exceed the dynamic range of the scanners. Most professional photographers tend to underexpose slides. Try this: Hold up a slide with its emulsion side toward you and try to catch an angle that makes the layers of emulsion visible. You might find that on the light areas there is barely any emulsion left, while on dark areas you see strong emulsion build-up.

Scanners can optimize the available dynamic range automatically, or they can be adjusted manually. There is even a chooser on the Howtek Scanmaster to set the correct type of film since each brand has different luminance. Once the film type is set, the software goes for a look-up table to correct for the particulars. A white correction will in effect remap the saturation to make better use of the full dynamic range. — By Laslo Vespremi

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Ron Cobb: Love/hate courtship with technology

BY KAREN SORENSEN

> *While Mac artist Ron Cobb is critical of much that's been done with technology, he holds a good deal of hope for the computer and its possibilities for helping to "improve our world."*

Picture yourself flying a spacecraft over a vast landscape in prehistoric times. Hovering high over a mist-shrouded jungle, you carefully maneuver toward a large plateau protruding from the clouds. Suddenly a huge pterodactyl appears out of nowhere and attacks your ship. Flapping its leathery wings about its aqua and red head, it swoops down and rips open the roof, sending you into a nose dive, reeling down, down, toward the jungle.

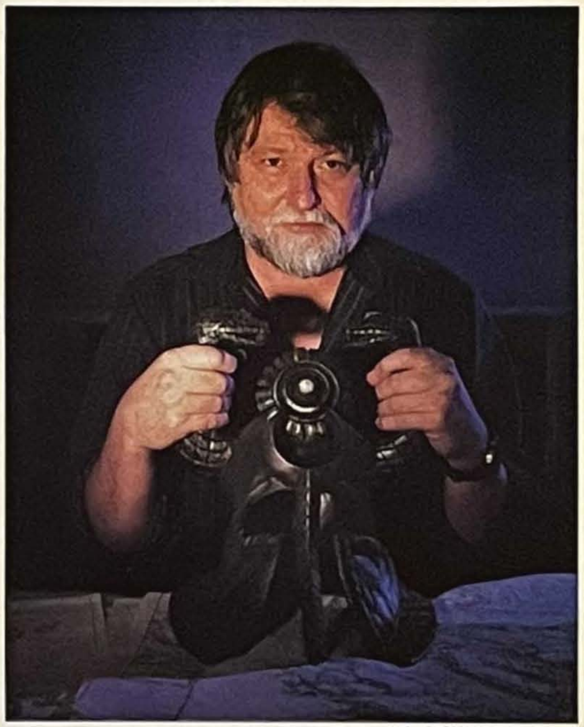
Welcome to the world of Ron Cobb, freelance artist and one of the designers of Time Vortex, an upcoming time-travel ride at the Disney MGM Studio Tour in Lake Buena Vista, Fla., which will open this spring.

The ride is just one of many projects on which Cobb, 51, has left his imaginative mark. Known for his political cartoons in the 1960s, some clearly anti-technology in content, the bearded, jovial artist is something of a science-fiction guru in the film industry today, as well as an accomplished Macintosh graphic artist. In Mac circles, Cobb is known for his award-winning PixelPaint images, such as "Afternoon on Titan" and "Iceworld." But his greatest triumph was the wild and weird aliens he designed for the celebrated cantina scene in the movie "Star Wars."

Like much of Cobb's work, the design of the aliens meant more than just artwork. Not content simply to draw the creatures, he made up their evolutionary histories and behavior as well. "I've always been enthused about the various explanations of evolution," he said. "With the 'Star Wars' aliens, I had fun imagining different planetary conditions and making biological speculations on what life forms evolved. I'd think in terms of behavior, where the nervous system would go and how the organs would work."

Cobb designed a hammer-headed alien, for example, based on an aquatic creature that evolved from a swamp. Another of his designs (not included in the final film) was a carefully thought-out descendant of an eggplant. "As I worked I kept moving the designs toward humor," he said. "I tried to never lose sight of that."

Cobb's interest in science isn't confined to evolution, and he is a voracious reader. "I'm in no way a qualified expert in any scientific field, but I like to portray things as realistically as possible. I do a lot of reading in aerospace engineering, and computer science and information technology fascinates me," he said.



MICHAEL GRECCO/PICTURE GROUP

Above, Ron Cobb pictured with a helmet he designed for James Earl Jones in the original Conan film. Below left, Cobb's "Ocean Planet," done in PixelPaint.

It was his fascination with computers that led him to John Whitney Jr., head of a now-defunct special-effects company in Southern California called Digital Productions. There, Cobb worked as an art director, using a Cray computer to create advanced computer simulations. His extensive work on the movie "The Last Starfighter" broke ground in the film industry.

"There was some 20 minutes of pure computer simulation in 'The Last Starfighter,' " he said. "The only parallel before that was 'Tron,' but in 'Tron' they styled the 'world' — the inside of a computer — to fit the limited capabilities of the VAX computer they used. In 'Starfighter,' we decided to go an extra step and make photo-real imagery. We used really elaborate databases. One object — the Starfighter ship itself — had 75,000 polygons. It was a very exciting time. We were constantly at the forefront of computer simulation."

Today, Cobb is increasing his use of the Mac II to help him design and conceptualize his creations. He is using the new color version of Pro3D, a 3-D modeling program from Enabling Technologies, to design a luxury space liner featured in "Total Recall," an upcoming science-fiction film directed by Paul Verhoeven (of "RoboCop" fame).

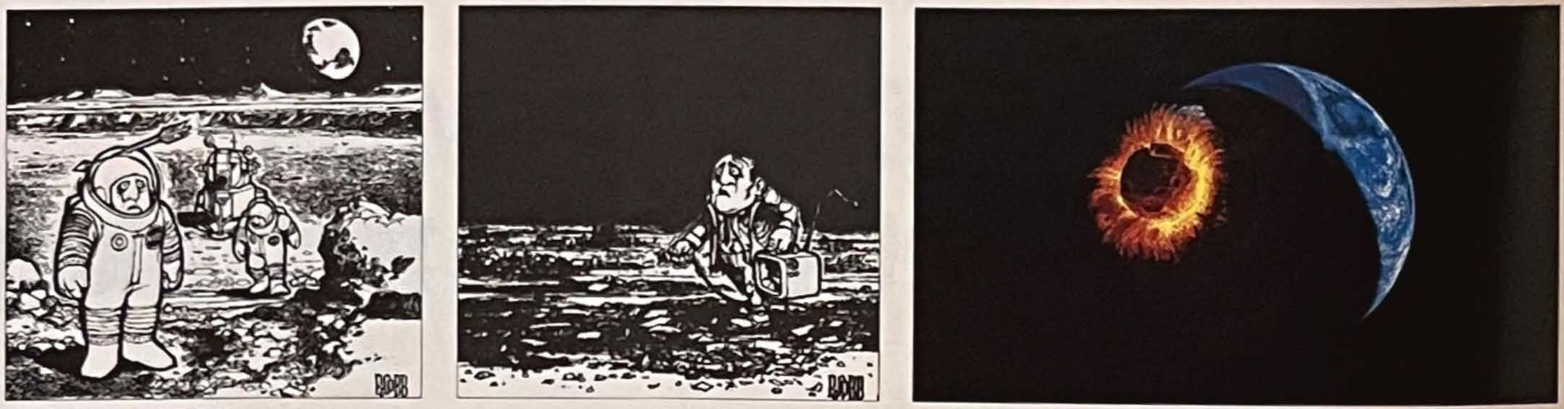
"I'm building a very complicated three-dimensional model, and with the features of Pro3D I can add polygons, shading and colors, and look at it with exaggerated perspective," Cobb said. He plans to enlarge the printed output from the program and then paint over the enlargement to create his final image. "It can take days just to plot out the perspective of a painting. This way I can rely on the calculating capability of the computer to do that, and then I can do the painting portion very quickly."

Cobb also plans to add to his library of PixelPaint-based artwork. "I prefer painting with light to acrylic as long as the resolution is there. I have more aesthetic control with light, and it's a more efficient tool," he said.

PixelPaint from SuperMac Technology is

Continued on next page

Cobb's 1960 political cartoons (left and center) reflect his mistrust of technology. His 1980s Macintosh-inspired look at the universe in "Collision 1" uses a new medium but extends his fascination with outer space.



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Continued from previous page

Cobb's favorite paint program because of its interface and the organization of its tools. "I also like the fact that you can use 256 colors and maintain resolution without resorting to dithering, which makes the image coarser. I can do graduated fills, air brush and mist effects, and, through anti-aliasing controls, lay in my own mid-tones," he said.

Like many Mac users, Cobb is hungry for more power. Once he gets it, he plans to increase his use of the Mac in his film work. His wish list includes faster printing and better resolution, the ability to generate larger output from his Mac, and, ultimately, a higher-quality color output device, such as a color laser printer, that more accurately renders colors.

He also foresees a day when a more powerful Mac could be used to build scaled 3-D models of a motion-picture set that precisely corresponds to the viewing angles of different camera lenses. "To be able to walk through the set and view it through all the different lenses before it's even built would be incredible."

Twenty years ago, few of Cobb's friends would have predicted that he would become so enamored of technology. During the 1960s, he was a well-known political cartoonist for the Los Angeles Free Press, and many of his cartoons carried a strong anti-technology theme. His images of nuclear holocaust and humans enslaved by their own mechanical creations illustrated the horrors of technology run amok. "I have a real love-hate relationship with technology," Cobb said. "I'm critical of much of what we've done with technology, but I'm also very hopeful about certain types of technology, like computers."

Computers are "pro-human development" devices, he said, since they have the potential to free human beings from time-consuming tasks and allow them to focus on "the bigger picture — where we're going, what we want out of life, and how to improve our world.

"Computers can also facilitate solutions to the ecological crises that our own technology has created," he added. His own contribution toward that goal is a project he is working on with Whitney, using an advanced Connection computer to reconstruct extinct animals, such as dinosaurs, and analyze how they declined.

"We want to match an elaborate model with the fossilized footprints of the same species and recreate its actual steps," Cobb said. "If we rebuild them from the bone up, with the computer placing every muscle in its proper place, we may be able to learn much more about them than we have by looking at their dead remains."

It is here that Cobb's past comes full circle with his scientific and technological present. "This isn't really an adolescent fascination with monsters and dinosaurs. All of this work contributes to the evolving biology on this planet. If we understand how such destruction occurred in the past, we'll know how careful we have to be to keep things from disappearing in the future." □

Karen Sorensen is a free-lance writer based in Palo Alto, Calif., who has been writing about computer technology since 1985.

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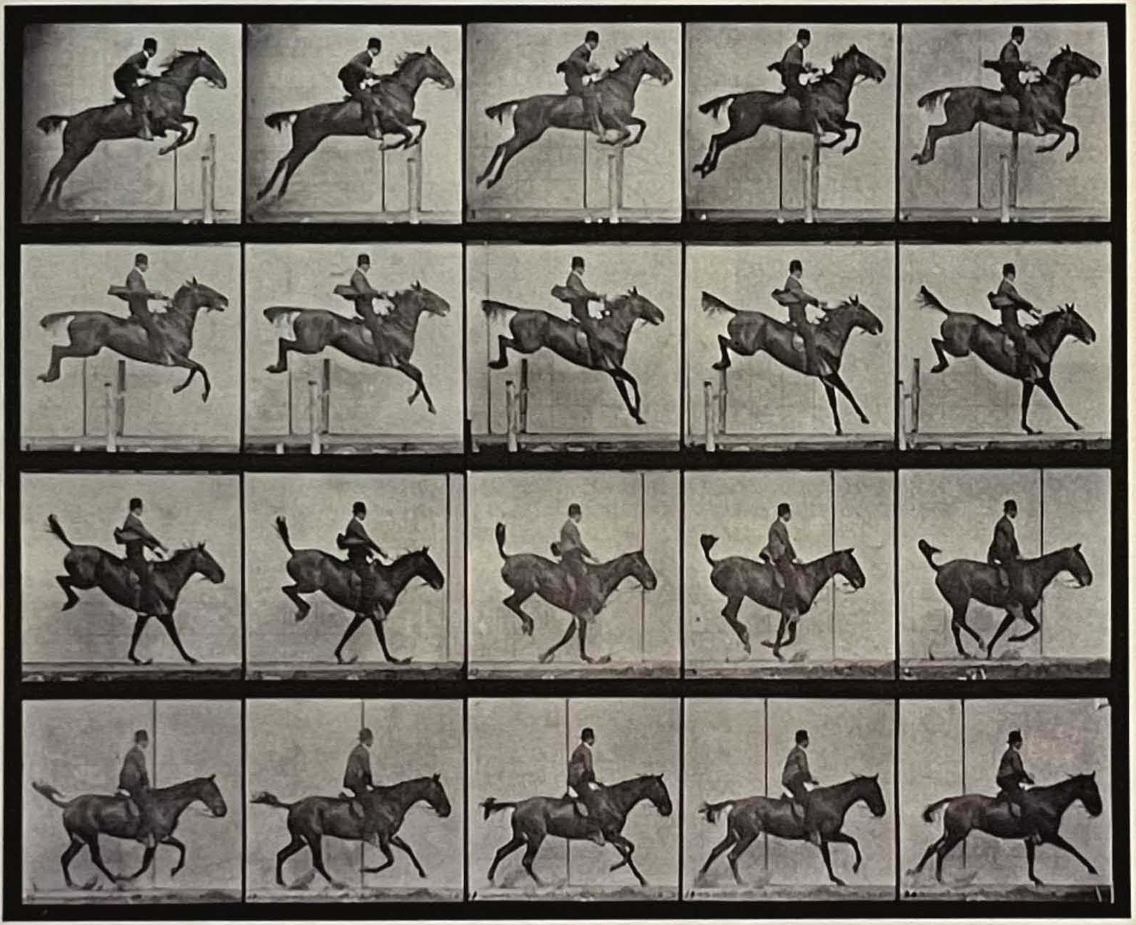

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GA PRODUCT INFORMATION

To complement the multimedia theme in this GA Supplement, we've arranged, by category, the products mentioned. Company names, listed alphabetically, and contact information begin on Page 38. For more information see Wings for the Mind, Apple's Guide to Multimedia Development.

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HyperAnimator: $199.95
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VideoWorks Accelerator: $195
VideoWorks II: $295
VideoWorks Interactive: $500
MacroMind Director: $695 (ships in March) MacroMind Inc.

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Course of Action: $695
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MacAuthor: $200
Mentor/MacVideo: $595
(site licenses also available)
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LC500 LCD projector: $3,495
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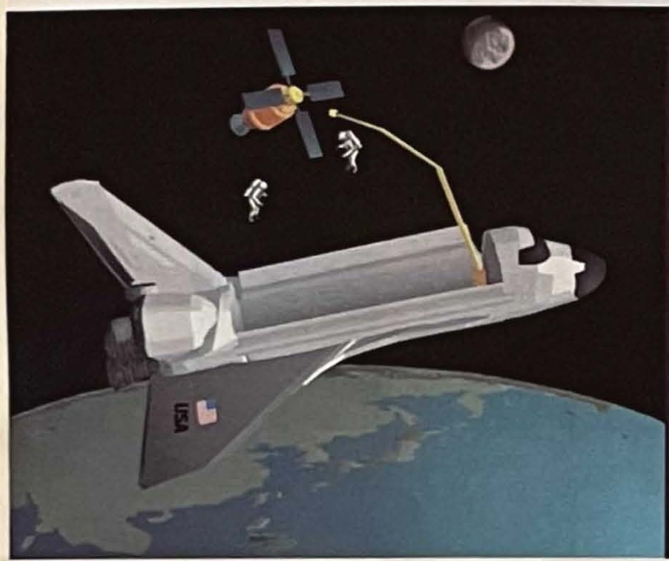

William Lombardo, Modelmaking & Illustration
Created with Swivel 3D and PixelPaint

Roy Santiago, Business Presentation
Animated Swivel 3D images in VideoWorks

"A superb presentation tool... Swivel 3D raises the standard of 3-D graphics on the Macintosh."
Joost Romeu, MacWeek

"It's a speed-demon. It's your basic $395 must-have."
Salvatore Parascadolo, MacUser

"Creating objects with complex surfaces couldn't be easier...only Swivel 3D lets you cast shadows on images."
David Peltz, MacWorld

"An amazing 3-D visualization tool that is easier to use than any of the 3-D packages...."
Laslo Vespremi, MacWeek

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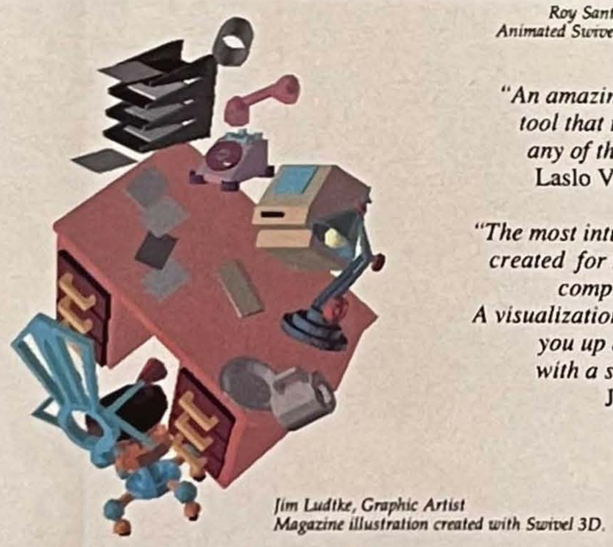
Jack Davis, Verbum



Jim Ludtke, Graphic Artist
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Minimum System Requirements: 1 meg

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Koala Technologies

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AST Research Inc.

ProViz Color: $1,695

ProViz Gray-Scale: $1,095
Pixelogic Inc.

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(The 2 GIG System servic

MIDAS System I: $14,
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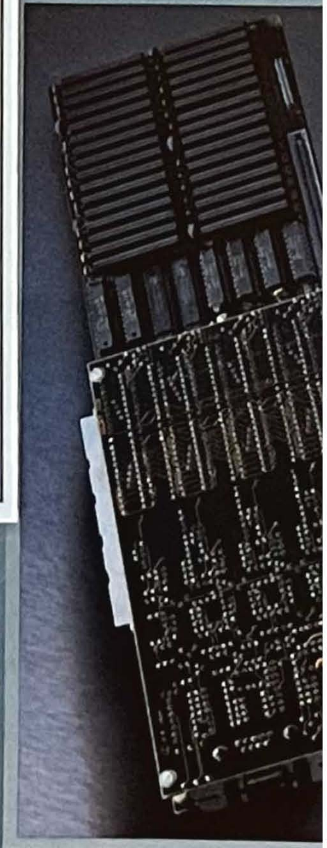

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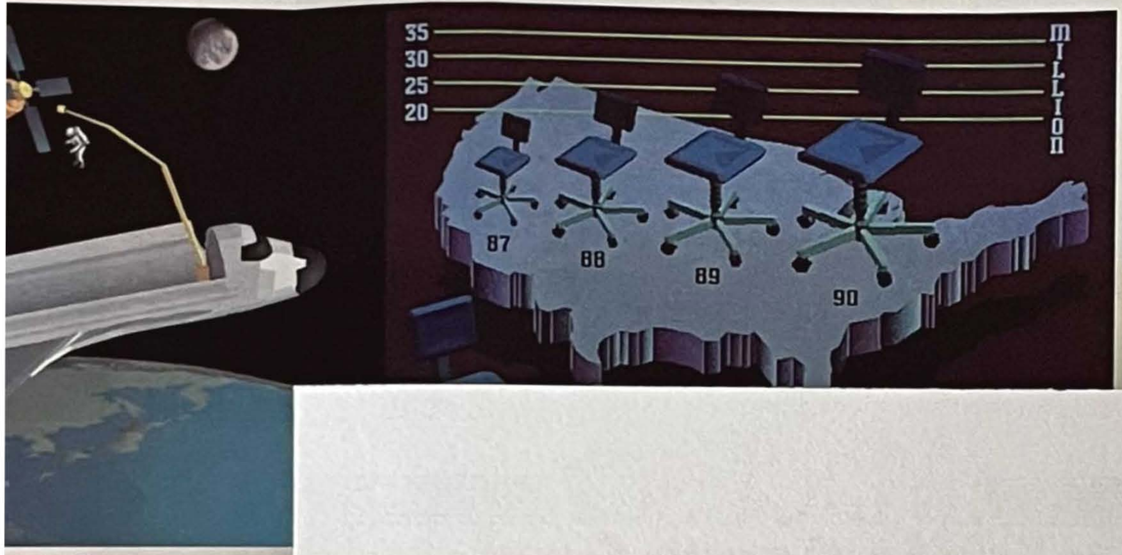

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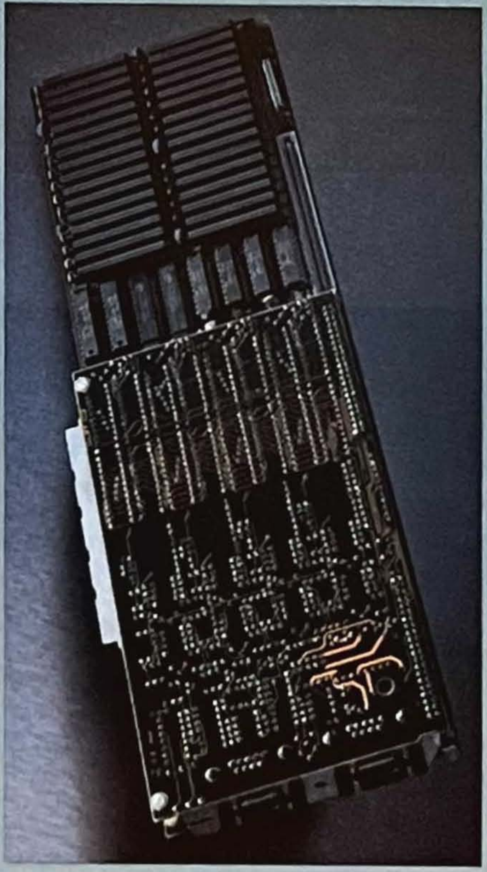

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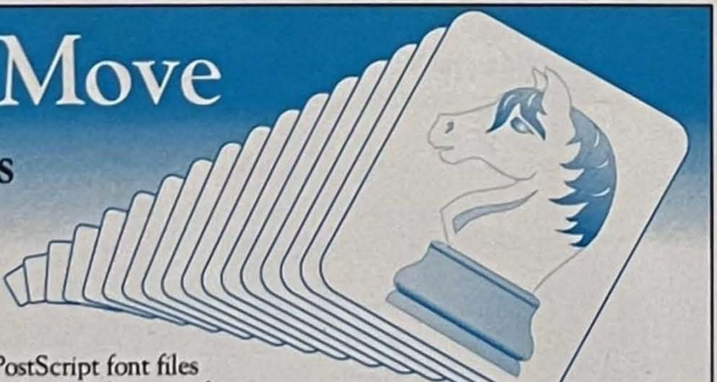

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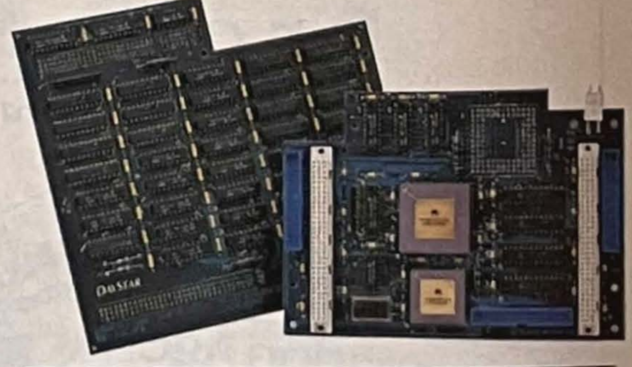

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A RAISIN in the sun at The Boeing Co.

Boeing's conferencing and database system supports internal communication.

By Harry Goodman

"We wanted to stimulate creativity while reducing redundancy."

Susan Valdez, a technology transfer specialist with the Computer Services subsidiary of The Boeing Co., was describing the rationale behind Boeing's internal computer-mediated conferencing and database system.

"The problem," said Valdez, "is that we have so many people working in so many different divisions at so many different sites dispersed over such a wide geographic area."

Boeing's problem is typical of many large corporations with offices across the country. How does a company like Boeing, with numerous campuses and more than 140,000 employees, promote internal communication among its staff? For Boeing, the ability of users of Macintoshes, IBM PCs and mainframe terminals to access a central conferencing and database system was the answer.

Valdez, following O. Henry's admonition to "inject a few raisins of conversation into the tasteless dough of existence," created RAISIN — Boeing's combination of the Caucus conferencing system (from Camber-Roth of Troy, N.Y.) and the SIRE database system (from Personal Librarian Software of Rockville, Md.). Access to RAISIN is through dial-up modem, DECnet and Ethernet connections.

According to Valdez, Boeing software engineers and research technicians, regardless of their divisional or geographic assignment, daily share their knowledge and concerns through several RAISIN conferences on software support and advanced technology.

Further, the system successfully bridges a wide dispersion of groups and locations.

RAISIN is currently serving members of Boeing's Aerospace, Advanced Systems, Commercial Airplane, Military Airplane, Helicopter, Electronics, Computer Services and Support Services divisions. Users are accessing RAISIN from Boeing sites in Pennsylvania, Alabama, Kansas, Florida, Canada and several installations in Washington's Puget Sound area.

Reaching the widest audience. In designing the system and selecting its components, Valdez had one overriding goal: "We wanted to provide service to the maximum number of possible users," Valdez said, "and we had to select system components that wouldn't interfere with widespread access."

As a result, Valdez has shied away from strict dependence on remote hardware or operating systems because simple dial-up access via modem would not be available to the many Boeing software engineers using networked terminals. Further, both the conferencing and database systems combine ease of use with clear, easily understood documentation. And Valdez' team considered access methods up front, in the design phase.

Valdez said she believes these design goals have been fulfilled. RAISIN's Caucus conferencing software and SIRE database system are both ASCII based, and thus almost universally accessible by Macintoshes, PCs and networked terminals. Valdez views both SIRE and Caucus as more than acceptable in terms of ease of use.

"It's not as though we don't get some complaints from our users," she said. "It's that we can usually make the requested system changes ourselves. We use a combination of shell scripts and macros to modify the system without a lot of outside assistance."

RAISIN runs on a standard IBM PC AT using SCO's version of Xenix. This system software combined with RAISIN's conferencing and database software can accommodate up to 11 simultaneous users. The system can grow to handle increased demands by simply being moved to more powerful hardware platforms.

RICH FRISHMAN

Boeing's Susan Valdez: "We wanted to provide service to the maximum number of possible users, and we had to select system components that wouldn't interfere with widespread access."

Access nitty-gritty. Initially, access to RAISIN was possible only via the public network and Boeing's private telephone network. But Valdez knew that many prospective terminal users wouldn't access the system because of the difficulty in coming on-line through these two routes.

She also knew that many Boeing staffers were using computer terminals connected to minis and mainframes running under the VMS operating system. A Digital Equipment Corp. DECnet was already in place for many terminal users throughout the company. A DEC MicroVAX 2000 running DEC's Ultrix was brought on-line in Valdez's work area and was soon recruited to serve as a bridge between RAISIN's Xenix and DECnet.

Boeing's DECnet users can now access RAISIN with a simple "SET HOST" command. Access via Macintosh is via one of three methods: by dial-up modem using Red Ryder, dial-up using Microphone and by AppleTalk connected to Ethernet.

Valdez is now making plans for a gateway between the company's IBM SNA network and the RAISIN system.

Information and interaction. The volume of traffic on RAISIN suggests that the combination of computer-mediated conferencing and formal database provides a highly efficient environment for software support and testing.

The Software Support conferencing section, for example, allows users to discuss problems they have encountered with a given

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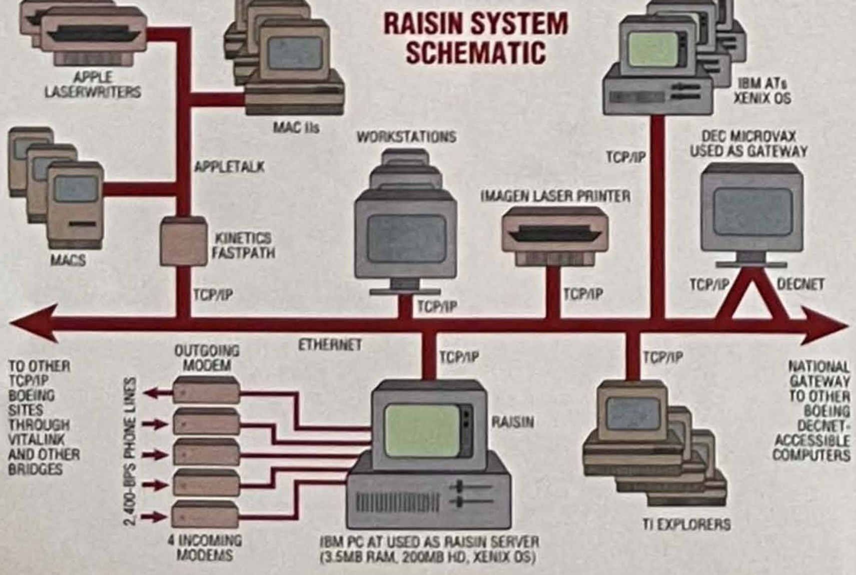


THE MAC MANAGER

The flat file vs. relational myth

DATABASES SEEM like pretty simple propositions. They store data in some organized way so that it can be easily retrieved when you need it, in the form you need it in. But if they are so simple, why are there dozens to choose from on the Macintosh? Are there really that many different ways to organize, store and retrieve data?

Maybe. For one thing, the Mac has fostered databases that store images, sounds, CAD files, even full-motion video as well as text.

No matter what database you opt for now, you're not obligated to that software forever. There's no reason you can't transfer your existing files to a new system that may come along later. That's one of the Mac's strengths.

DON CRABB

Macintosh text-based databases can almost be classified into the familiar flat file and relational variants. Almost. Although the distinction between flat file and relational is important, the fact that a database organizes data into a single file or through interconnected multiple files shouldn't be germane to your initial database decision. What should be important is the interface.

I'm always amazed how often we Mac managers forget the importance of software. Perhaps we take it for granted that all Macintosh products are easy to use by virtue of their "Macness." If that's the case, how do you explain database aberrations like DMacIII or Omnis II? Pick the wrong interface, and you'll suffer. And so will your staff.

It's the subtleties of the interface that constitute the competitive advantage of many databases. Think about how different it is to use dBASE III on a PC compared with dBASE Mac. While both of these Ashton-Tate products can be categorized as relational databases, they sure don't work alike. Users of one system don't necessarily have any skills that can be transferred to another.

Another problem with the flat file/relational dichotomy is that some vendors would have you believe it's the only important distinction among Mac databases. Some

See MAC MANAGER, next page

Continued from previous page

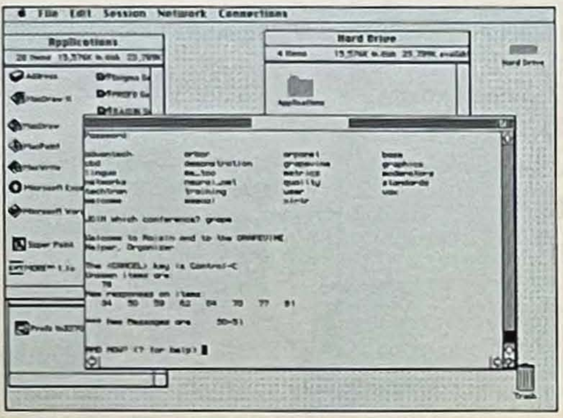
product. Those questions are answered by software designers, product support personnel and other users. User interaction through RAISIN has also led to a speedier recognition of previously unanticipated product uses.

The formal database in the Software Support section provides access to advance releases of Boeing's internal software catalogs and user manuals.

RAISIN's Advanced Technology conferences address such issues as artificial intelligence, the Ada programming language and neural network development. The database section contains documentation for the internal software relating to the conference's general topic, technical and professional papers and trip reports detailing visits to company.

According to Valdez, other conferences intended to discuss the full spectrum of Boeing's business and operational concerns will be added as RAISIN grows.

Spreading the word to users. Creating an easily usable and accessible system represented only a portion of the original goal. The next step was attracting users. This, according to Valdez, was her biggest challenge.



Start-up screen for grapevine conference showing conference list.

Valdez and her colleagues in the Services Integration section decided upon a three-pronged approach in marketing RAISIN to targeted users within the company of 143,000-plus employees. First, a series of feature and news articles was published in 13 of Boeing's internal newsletters. Next, whenever anyone in Services Integration gave a company speech, class, workshop or other presentation to an audience containing even one prospective user, he or she would spend a few moments promoting RAISIN. Finally, Valdez and her colleagues requested remote system administrators to place RAISIN announcements within their system's log-on message.

Their efforts appear to have been successful. There are now more than 500 active RAISIN users, with more joining every week. □

Harry Goodman, based in Sausalito, Calif., writes and consults on implementing information technology in the business, education and government communities.

MAC MANAGER

Continued from previous page

vendors will even tell you that by their very nature, flat file databases are less powerful than relational ones, but always easier to use, while relational databases are always harder to use and more powerful.

Baloney.

If you manage to resist the urge to fall into the database dichotomy trap, you will be surprised just how different database products are in enabling a specific kind of application.

I've already made the database selection search and adopted (for myself and my clients) Claris' FileMaker II, ACIUS' 4th Dimension and Fox Software's FoxBASE+/Mac.

I happen to think that FileMaker II is just about the slickest forms-based database I've ever used. It also happens that FileMaker II's competence and features make it ideal for a number of basic and intermediate-level database chores, like customer invoicing for a small businesses.

Still, as good as FileMaker II is at database forms, it's weak at larger duties, or those that will grow beyond basic systems. For example, if you need to build a complex, stand-alone application that will use lots of different kinds of data from different kinds of computers, then FileMaker is inappropriate. It's simply not designed to manipulate multiple file structures well.

For medium-duty and larger database applications, such as point-of-sale systems or almost any kind of generalized transaction processing, I use 4th Dimension. Yes, I know that Version 1.1 is slow. But Version 2.0 will be much faster, and 4D has plenty of tricks you can employ to keep 1.1 performance acceptable. The fact is that despite its performance problems, 4D offers just about the most complete database development environment available anywhere.

For truly large database systems (more than 20,000 records), my choice has been FoxBASE+/MAC. FoxBASE has consistently proved itself the fastest Macintosh database in a number of standard benchmarks and in general usage tests. While FoxBASE doesn't have all the development goodies that make 4D so interesting, it does come with a set of strong utilities that make it a good database application development product.

In later columns, I will explore some of the issues raised here in greater detail. □

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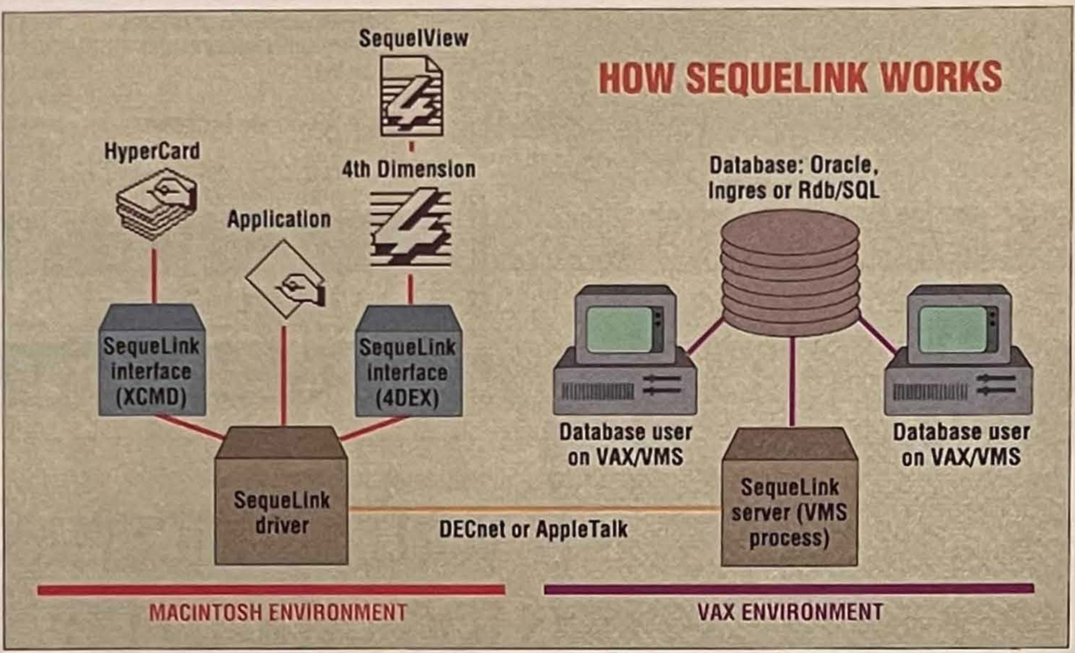


The SequeLink driver from Belgium-based Gnosis N.V. is an SQL server that will connect 4th Dimension or other relational databases on the VAX.

SQL: Promise or panacea?

SQL promises to be the No. 1 method for accessing disparate databases across platforms. The Macintosh still has to catch up with its computing cousins.

By Don Crabb

During the past two years, SQL has been a hot topic, especially on mainframes, minicomputers and personal computers. The reason is simple: By being device-independent, SQL promises to allow companies with different kinds of computers to share database components more easily and more transparently. In 1988, SQL started to heat up the distributed database market for the Macintosh as well.

Is all of the hoopla based on realistic expectations? The answer is a decided maybe.

In theory, any SQL implementation can work with any other SQL, which accounts for much of its growing popularity in the microcomputer world. What that means is that SQL can allow a PC or (eventually) a Mac to access database tables stored on equipment as different as IBM and Amdahl mainframes, DEC VAXes and Sun workstations, all running different operating systems and different database systems.

But for a number of reasons, such device independence has yet to prove as widespread as all of the ruckus would have you believe.

The soul of SQL. A relational database management system (RDBMS) that incorporates SQL — including Relational Technology's Ingres, Oracle Corp.'s Professional Oracle and Informix Corp.'s Informix/SQL — typically functions through three separate program segments.

These segments are the user interface, which resides on the micro; the data tables, which reside on the mainframe or mini; and the SQL server (sometimes called the SQL engine), part of which resides on the host and part on the micro.

The micro's user interface does what you would expect: It displays windows and menus and allows data to be searched, modified, added, deleted and reported on. How this interface has been constructed will determine how transparent the connection appears to the microcomputer user. In fact, the actual SQL can be hidden from the user by the micro interface, although most SQL-based systems allow users to issue SQL directly. This is a virtual necessity given that SQL is a sophisticated language.

Unlike Cobol, the high-level language most like SQL, SQL does not attempt to be a complete language, lacking any sort of programming structures (like conditional and looping statements) that could be used for writing stand-alone database applications.

As a result, most RDBMS incorporating SQL provide some kind of proprietary fourth-generation language (4GL) that offers the programming structures that SQL lacks.

To accomplish machine-independent logical database access, the SQL server actually creates the logical structures for the data. The data are then written to disk by the proprietary methods employed by the individual database system. Because the data are logically written and read through SQL, any micro RDBMS that incorporates an SQL-compatible interface should be able to access that mainframe data as if it had created it in the first place. The keyword here is "should."

An embarrassment of standards. The problem is that SQL has not been standardized to a single version. Currently, there are two ANSI (American National Standards Institute) standards for SQL. ANSI Level One is a basic SQL standard that few vendors have adopted. ANSI Level Two, based on IBM's implementation of SQL for DB2, its monster relational database, has gained wider acceptance among vendors.

But even these two levels don't cover it all because several vendors have produced SQL implementations that essentially are supersets of Level Two SQL.

In addition, a number of vendors attempting to gain a competitive advantage have created application program interfaces (APIs) as adjuncts to SQL. What this all means, unfortunately, is that SQL is much more a theoretical micro-to-mainframe connectivity solution than a real one.

Many SQL users realize this problem. David Long, director of computing services at the University of Chicago's graduate school of business, said: "SQL is a big improvement over no SQL, but it's no panacea. You still have to have well-designed database applications."

Many MIS managers share Long's ideas. They said they see SQL as an aid to integrating different micros into their existing mainframe databases but not as a database nirvana.

Beyond the problem arising from multiple "standards," potential Mac SQL customers face two other difficulties. For one, SQL products are reaching the Mac with nearly glacial speed. For another, many potential installations don't have SQL-compatible mainframe RDBMS.

One disgruntled database administrator at a major eastern university said: "We don't have a bloody SQL-compatible database on our [Amdahl] 580, so why the hell would I want all my Macs to have SQL on them? For us, SQL on our Macs is just not that important. Even if we had DB2, I haven't seen anything for the Mac that really works now."

Probably the biggest reason for the slow Mac SQL development is that the Mac already has some solid relational database products (like 4th Dimension, FoxBASE+/Mac and Double Helix II) that provide either proprietary access or generalized access through such third-party software as TOPS, the AppleShare-Unix FileServer, AlisaTalk/AlisaShare and PacerLink/ PacerShare.

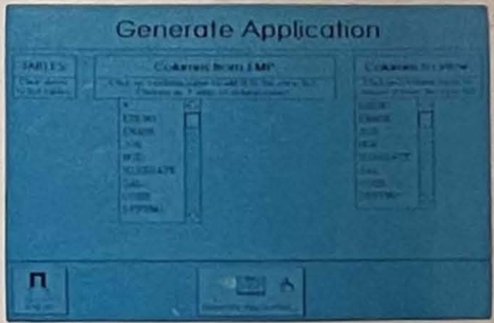
These same Macintosh products also allow Mac database developers to build the kinds of large systems that previously ran only on IBM mainframes, further diluting the need for the Mac/SQL/mainframe connection.

There is a potential benefit from this slow SQL development for the Macintosh. The result could be a much more stable SQL environment than that of the PC, as described earlier.

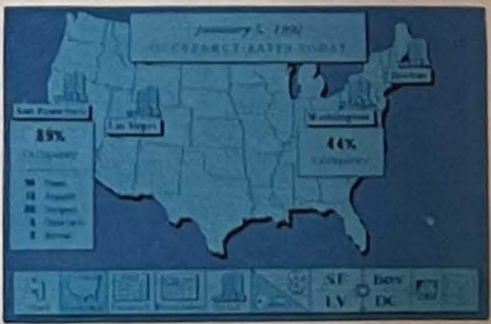
Current Mac SQL offerings. For now, the two most prominent SQL entries for the Macintosh are SequeLink from Gnosis N.V. of Belgium (marketed in this country by Alisa Systems) and Oracle SQL from Oracle Corp.

SequeLink is an SQL server that purports to connect HyperCard, 4th Dimension or other high-level languages to SQL-based relational databases on the VAX. According to

Continued on Page 32



Oracle SQL will connect Macs, VAXes and Unix-based machines like those from Sun Microsystems.



The HyperCard-based interface of Oracle SQL for the Mac shows advantages of using the Mac as a front end for relational database systems.

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☐ 52. Desktop Publishing
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☐ 54. Database
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and Informix Corp.'s Informix/SQL — typically functions through three separate program segments.

These segments are the user interface, which resides on the micro; the data tables, which reside on the mainframe or mini; and the SQL server (sometimes called the SQL engine), part of which resides on the host and part on the micro.

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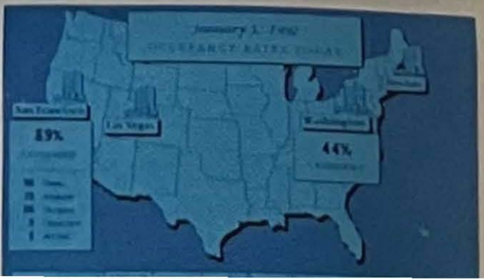

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Informix has ported its SQL system to the Mac without adding a Mac-style interface. This screen shows the main menu, from which users can generate a report, form or table from mainframe data.

Continued from Page 30

Gnosis, the links developed so far work with Oracle on the VAX and with Digital Equipment Corp.'s own RDB system. (That SequeLink must be developed for each RDBMS points out how far SQL is in practice from achieving transparent connectivity.)

Oracle SQL for the Mac is said to offer a HyperCard interface to the Oracle relational database running on minicomputers, like the VAX, or under Unix on Sun workstations.

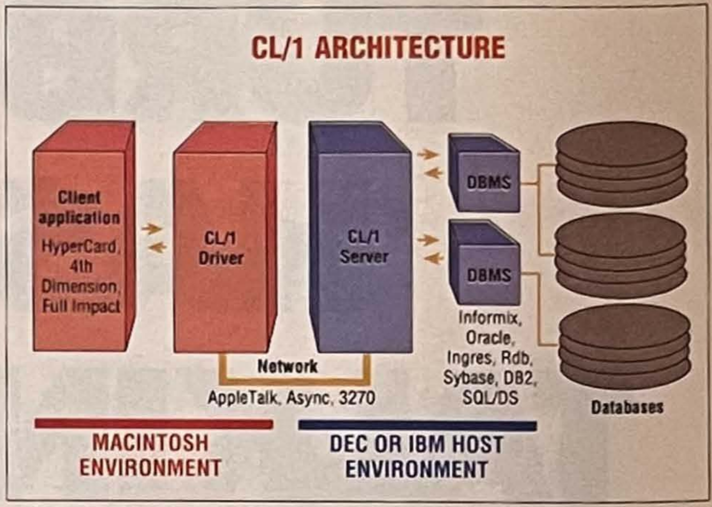
Unfortunately, few people polled for this article seem to know much about either product, and ignorance has engendered apathy.

Several MIS managers at Chicago-area companies, who also happen to be members of a Chicago-area Macintosh users group, agreed with the sentiments of one manager wishing to remain anonymous: "The Mac has some great native databases, like 4th Dimension, FoxBASE and Helix. Why do we need SQL? The reason we went with the Mac was to cut development time of ad hoc database applications. Our IBM mainframe development time was too long for many of our systems. For a lot of things we just don't need a big machine."

Asked if he could see a use for SQL Mac products in the future, one manager replied, "At some point I'd like to build Mac front ends to DB2, but that time is down the road."

Still, SQL holds the promise of becoming a major force in mainframe database access, primarily because it's the specified access for IBM's monster RDBMS, DB2. Moreover, SQL will eventually be taken up by products running on mainframes, minis, Unix-based workstations, DOS, OS/2 and the Mac. The presence of Big Blue, and the enormous potential of SQL, means that it should not be discounted, despite current drawbacks.

One important product for the Macintosh is Network Innovation's CL/1 connectivity language. CL/1 provides an interface between a Mac application and a mainframe application, typically a database. CL/1's statement orientation derives from SQL, but goes beyond SQL's limited access and specification capabilities. For example, CL/1 includes a full set of conditional processing statements, loops, block structures and other high-level language facilities that SQL doesn't offer. Moreover, CL/1 includes its own application program interface that is the Macintosh's point of contact with the CL/1 server.

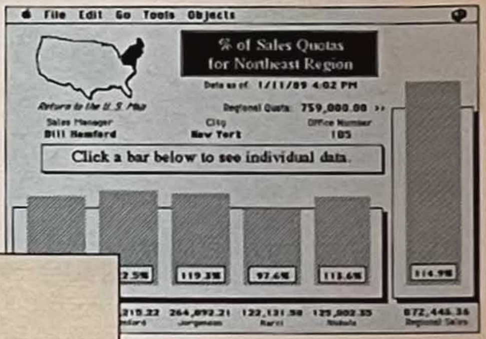


Network Innovations' CL/1 connectivity language builds on the foundation of SQL, adding high-level programming abilities making it more flexible.

the way to implement SQL in your shop the way you want it to be. ☐

Don Crabb is the director of laboratories and a senior lecturer for the department of computer science at the University of Chicago. He is also a contributing editor to MacWEEK.

Database interface developers using HyperCard can incorporate CL/1 commands into their scripts, allowing users to access mainframe power through buttons.



```
On OpenCard

    CL1 Send "select repname,
      sales, quota from staff"
    CL1 Send "where region="
    CL1 Send card field 1
    CL1 Send ";printall"
    CL1 Exec
    If CL1 Status is not empty
      then go to error
    put CL1 GetVal into results
    ...
    End OpenCard
```

Not much there, there. Oracle and Gnosis/Alisa both have products on the market for the Macintosh, but distribution remains limited. Other vendors have announced SQL support. But an SQL server is not particularly easy to develop, so delays occur.

Then, too, others see SQL as a building block — albeit an important one — helping the Mac achieve a greater part in corporate connectivity. To ACIUS President Guy Kawasaki, for example, SQL is just part of the Mac-to-mainframe database connectivity solution. "Our fundamental belief is that the users should be able to transparently access data no matter where it resides," Kawasaki said. "The combination of 4th Dimension, CL/1 and SQL is a large step in that direction."

The upshot is clear. If you decide that you want to become part of the Mac SQL "revolution," you'd better be prepared to act as a beta or even an alpha tester. While that pioneer role may put you off, it just might be

PRODUCT INFO

ACIUS
4th Dimension: $695
20300 Stevens Creek Blvd., Suite 495
Cupertino, Calif. 95014
(408) 252-4444

Alisa Systems (for Gnosis N.V.)
SequeLink: $395 per Mac for Macintosh client software; $2,950 to $9,950 for VAX server, depending on type of VAX
221 E. Walnut St., Suite 175
Pasadena, Calif. 91101
(818) 792-9474

Fox Software
FoxBASE+/Mac: $395 for single user; $595 for multi-user
118 W. South Boundary
Perrysburg, Ohio 43551
(419) 874-0162

Informix Software Inc.
Informix/SQL for A/UX: $1,395
4100 Bohannon Drive
Menlo Park, Calif. 94025
(415) 322-4100

Network Innovations
CL/1 language: price unavailable at press time
20863 Stevens Creek Blvd.
Cupertino, Calif. 95014
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Odesta Corp.
Double Helix II: $595; Helix VMX:

Continued on next page

TECHFILES

Apple's tool development is important cog

APPLE'S EVANGELISTIC EFFORTS on behalf of tools used for software development, such as programming languages, is unique. It both encourages outside products and preempts portions of the marketplace with its own products.

The right tools are an important lure for writing new application software, as well as a factor in making that software available sooner to users. What's more, Mac software development has expanded beyond just the commercial developer to include more end users. (I'll discuss this in more detail in my next column.)

As with application software, when publishers of third-party tools make money selling their solutions, Apple makes money selling hardware, and users have a wide range of off-the-shelf solutions to choose from.

Third-party tool developers get encouragement from Apple, but their products can also be wiped out if Apple competes. As the joke about IBM goes, if you get in bed with an elephant, don't expect to sleep very well because the elephant may roll over and crush you.

JOEL WEST

Why does Apple develop such tools? Originally, all software was strategically important to the Mac, but now Apple's focus is limited to "system software." And that includes tools.

Most computer manufacturers have three goals in their tools development:

- To facilitate development of operating system software.
- To let others write software.
- As a separate profit source.

Apple's tools reflect its open systems interconnect requirements, including coding new ROMs, diagnostic programs, System, Finder and drivers. The original system software was developed in assembler and Pascal, but the recent emphasis has been on C and C++, which is why all are found in MPW. And many of the revision control features of MPW 3.0 stem from Apple's difficulties in testing ROM and System updates.

Apple's tools match its original focus on developers of retail business applications, such as word processing and spreadsheets. Again, the availability of C, Pascal and assembler meets such needs.

However, the new thrust into scientific and engineering markets assures a crucial role for other languages. These less-popular niche languages have so far been handled exclusively by third parties.

Apple recently bought one such company, Coral Software, which offers Common Lisp. But Apple's goal was to start the nucleus of an AI research lab in the midst of the Cambridge/Route 128 talent pool, not to assume responsibility for Coral's existing products.

Besides Lisp, other important research and engineering languages include Fortran, Ada and Smalltalk, and in all cases, Apple depends on outside suppliers.

Fortran development has been entirely driven by third parties, as Apple's young staff has little experience with this aging but still popular language. Apple's recent thrust into the federal market has lured Ada vendors Altsys, Meridian and Telesoft to develop this key product for government bids.

Meanwhile, Apple killed its own nearly complete MacSmalltalk 2.0 in favor of Digitalk's Smalltalk/V. The fact that the PC Smalltalk/V is the only commercially successful object-oriented product was an important factor in that decision.

The small size of the tools market means there will be no smash hits comparable to an Excel or PageMaker. To date, there are only two clear success stories. One is TMON from ICOM Simulations, a debugger that is more popular than Apple's MacsBug.

The second is LightspeedC, the most popular Mac compiler. Other C suppliers are either gone, or lag far behind. In contrast, Pascal dollars are split between MPW, Lightspeed, Turbo and TML.

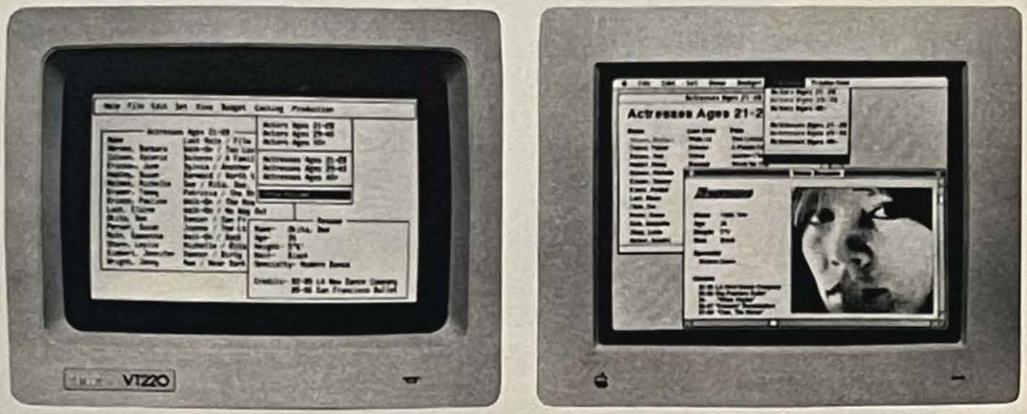
Apple has helped third parties by licensing MPW, which is included with products such as Language Systems' Fortran, Meridian's Ada, SemperSoft's Modula-2 and TML's Pascal. That Apple did not charge hefty license fees to recover its multimillion-dollar MPW development cost suggests the strategic importance of such outside products.

But economic realities ensure that Apple will continue to be active in providing tools. Such tools are the foundation of Apple's strategy of using software to distinguish itself from its hardware competitors.

As one insider confided, "If we left it to other companies, most would go bankrupt, and there wouldn't be anything being done." ☐

Database connection sans SQL

Helix offers an intuitive way for Macintosh users to retrieve database information from a VAX.



Odesta Corp.'s Helix VMX takes advantage of the Mac's interface, linking VAXes and Macs through an icon-based system.

SQL is not the only way for your Mac to access databases on larger computers. Several Macintosh database vendors have already released products that allow host computers to function as repositories of Macintosh data. The Macintosh vendor with the most experience with this kind of system is Odesta Corp.

Odesta produces the Helix series of products, including Multiuser Helix and Double Helix II. Odesta's Mac-to-VAX database program is Helix VMX.

The program allows Double Helix II applications to run on VAX computers under the VMS operating system. Helix VMX applications can be run from either Macintoshes or VT-series terminals connected to the VAX. This flexibility helps keep equipment costs down because you don't have to buy a Mac for every Helix VMX user.

The difference between an application like Helix VMX and an SQL implementation on the Mac is that the Helix solution is a closed application. That is, the Helix application works because the data are created using Helix, stored on a VAX running Helix VMX and accessed by another Helix application.

Helix VMX is not command-driven the way SQL is. Helix does not even provide an access and specification "language." Instead, Helix VMX applications are built by manipulating a number of icons that represent data, calculations, comparisons, selections and so on. These icons work like SQL's command language, coupled with the kind of 4GL features that products like Ingres provide.

The Helix method is especially intuitive for users who may not have any formal training in database structure or rudimentary programming but who know conceptually what they want to do. — *By Don Crabb*

PRODUCT INFO

Continued from previous page
$4,500 and up, depending on Mac CPU
4084 Commercial Ave.
Northbrook, Ill. 60062
(312) 498-5615;
(800) 323-5423

Oracle Corp.
Oracle SQL: **$199** for developers' version,
$999 for networking version
20 Davis Drive
Belmont, Calif. 94002
(415) 598-8000;
(800) 672-2531

Relational Technology Inc.
INGRES: **$3,250** for single user, up to
$43,000 for multi-user versions
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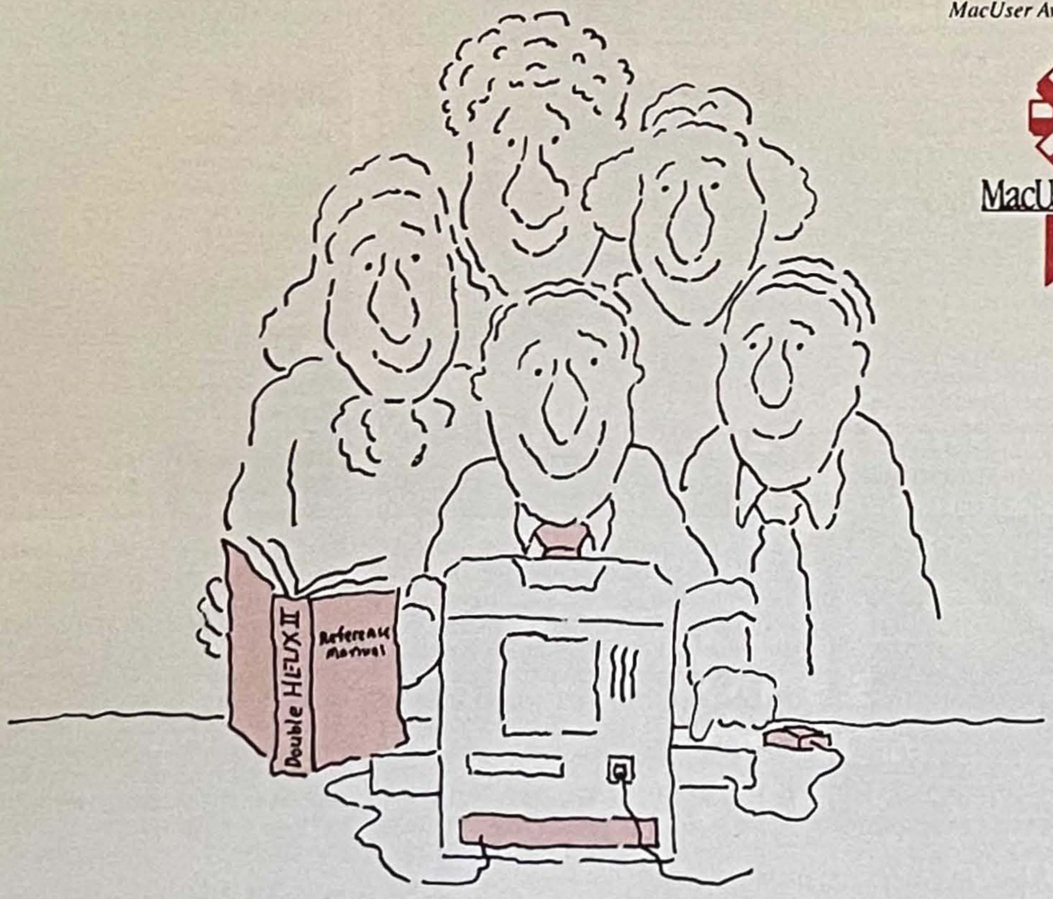

With Double Helix II, even managers with no technical skills can custom-design business solutions.

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New paint programs color Mac beautiful

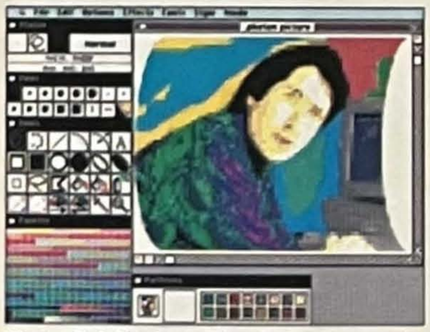
Neat features, weird interfaces abound

BY MICHAEL MURIE

Despite its impressive color capabilities, when the Mac II first appeared there were no color paint programs for it — even the black-and-white MacPaint crashed. The release of MacPaint 2.0 fixed compatibility problems, but Claris has been slow to release a color version of the granddaddy of Macintosh paint programs. Happily, many publishers have stepped into the void, and the sophistication of their offerings seems to grow daily.

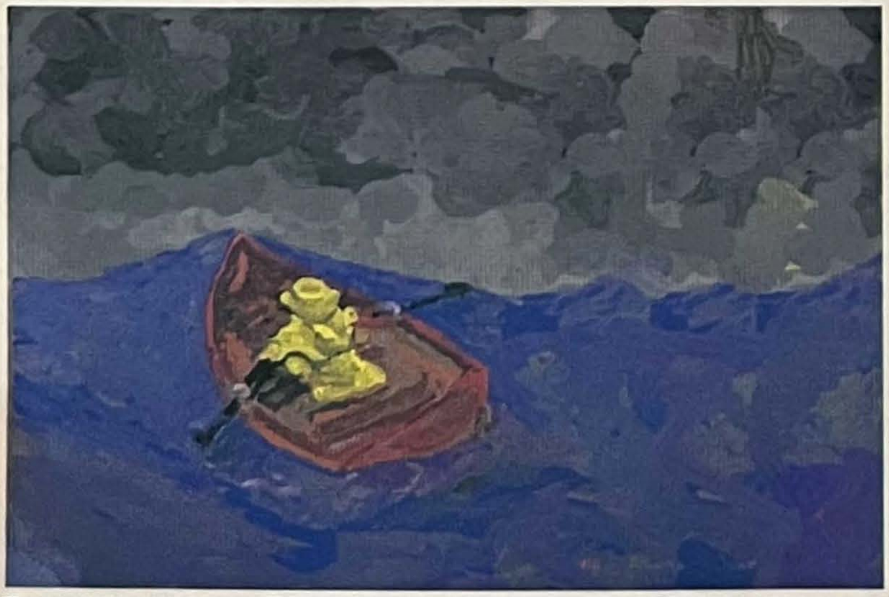
PixelPaint from SuperMac Technology was the first color paint program to receive wide acceptance (see MacWEEK, Jan. 19, 1988). It was closely followed by the releases of LaserPaint and Modern Artist (see MacWEEK, Feb. 16, 1988). But the market truly heated up last fall with the delivery of several entirely new programs and upgrades. We reviewed four new color paint offerings: Modern Artist 2.0, GraphistPaint II, Photon Paint and Studio/8.

While all of these programs provide the standard tools that users are accustomed to, such as the lasso, marquee, paint brush, spray can, paint bucket and eraser, they differ in special features, effects and control of these effects. Some programs are aimed at digital photo retouchers, like PhotoMac, LaserPaint Color II and the coming ColorStudio. Some are combination paint and draw programs, such as Canvas 2.0 (see MacWEEK, Jan. 24) and SuperPaint 2.0. Others are aimed at those creating original bit-mapped art on the Mac. We focus here on the latter category and try to point out the differences in features and techniques that make each program unique.



Photon Paint's pixelization feature is one of its best.

Modern Artist 2.0. When MacWEEK first reviewed Modern Artist we found it to be an impressive color program that was lacking in several areas. Version 2.0 corrects some of these problems and adds new features such as 3-D shading and a color separation utility.



Modern Artist from Computer Friends can produce color separations of its files, such as the painting shown above.

Tool overview. Modern Artist 2.0 includes the common paint tools as well as Stain, Shade and 3-D functions that work with some of the other drawing tools. Rounded corners can even be given defined radii. However, unlike most paint programs, each tool remembers the color that it last used. This is a boon or a bane depending on how you work. Also, the tool icons are larger than normal Macintosh icons, taking up much more space on screen.

Color separation. Modern Artist is the only program of the four reviewed here that prints color separations. Separations involve printing three pages containing the cyan, magenta and yellow components of the illustration. Modern Artist accomplishes this through an excellent utility called Color Sep.

Color Sep works with any PICT file. You can define the screen angles, screen size, page orientation, and whether a positive or negative is required. It managed to separate files created by all other programs mentioned here.

Color modes. In our original review we found the weakest part of the program to be its color modes, and this is still true. It has a Standard mode that uses the 256-color Apple palette but provides access to only 92 colors at a time and an Expert mode that also gives you simultaneous access to only 92 primary colors but adds four bands of color to define as 3-D fill and gradient patterns.

While the Expert mode can provide excellent effects, it does so at the expense of flexibility and compatibility. No other program

Continued on Page 36

Modern Artist 2.0

Computer Friends Inc.
14250 N.W. Science Park Drive
Portland, Ore. 97229
(503) 626-2291

List Price: **$495**

+ Includes Color Sep utility; has 3-D shading and unique special effects.

− Limited color selections; expert-mode images not compatible with other programs.

Photon Paint

MicroIllusions
17408 Chatsworth
Grenada Hills, Calif. 91344
(818) 360-3715

List Price: **$299.95**

+ Black-and-white version runs on Mac Plus; multiple view windows; almost unlimited enlargement; unique shape wraps.

− Many effects are very slow; only supports PICT files; has problems with desk accessories.

GraphistPaint II

Aba Software Inc.
41 Great Valley Parkway
Malvern, Pa. 19355
(215) 644-3580; (800) 234-0230

List Price: **$495**

+ Powerful features such as stencil and wrap to sphere; supports video.

− Only opens one file at a time; has problems with desk accessories; does not warn you to save stencil.

Studio/8

Electronic Arts
1820 Gateway Drive
San Mateo, Calif. 94404
(415) 571-7171 in California
(800) 245-4525

List Price: **$494.95**

+ Many features, including masking and perspective; saves in color TIFF; has file-preview option; comes with Color-Cam and Gallery Utilities.

− Cannot save or load color palettes separately from documents.

THE WEEK IN REVIEWS

Dealing with a blitz of INITs

BY BECKY WARING

The proliferation of INITs (Startup documents, those tiny programs that load into RAM at start-up and perform myriad tasks such as making all your quote marks curly) has led to bewildering conflicts and System errors. Until now, common wisdom advised removing these start-up documents from the System folder one by one until problems disappeared.

Some also caught on to the trick of renaming the documents to change the order in which they were loaded into memory, thereby solving some conflicts. But these were clumsy solutions. While Apple could do something about this situation at the System level, developers have forged into the void with three utilities, themselves INITs, that help control others and bring order to an uncertain Mac world.

Aask to the rescue. The first commercial product was Aask, part of CE Software's MockPackage Plus set of utilities. Aask loads itself first and then lets you turn other INITs on or off, temporarily or permanently, as you start up your Mac. You can also do this from the Control Panel and then reboot.

Inix allows more control. The second product to hit the INIT scene was Inix from Natural Intelligence Inc. Like Aask, it loads itself first at start-up, and then lets you enable and disable INITs. The bonus is that you can also save different sets of INITs for various purposes. For example, you might want one set with everything turned off for troubleshooting purposes, another with everything turned on, and still others for use with particular programs, such as FullWrite and PageMaker, that use a lot of memory and have frequent problems with INITs. Inix accomplishes this by creating a folder of sets within the System folder. You can select and edit sets at start-up, or use a DA version before rebooting. The sets are simple text documents, which can be created with a word processor.

INITPicker arrives. INITPicker, just released at the Macworld Expo, is a control panel device similar to Aask. It can be invoked at start-up to enable and disable INITs from a scrolling list. It also has options to skip all INITs or run all INITs without changing your normal selections. This is essentially equivalent to a three-set version of Inix.

While Aask, Inix and INITPicker are welcome, and sorely needed, utilities, none truly solves the problems of users bombarded with new INITs. A diagnostic utility that can pinpoint which INITs are causing problems is still needed. Trial and error just doesn't cut it.

CE Software can be reached at P.O. Box 65580, West Des Moines, Iowa 50265; (515) 224-1995. Natural Intelligence is located at 86 Richdale Ave., Cambridge, Mass. 02140; (617) 266-7858. Microseeds Publishing is located at 7030-B W. Hillsborough Ave., Tampa, Fla., 33615; (813) 882-8635. □

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Texturing tools and a good interface distinguish Electronic Arts' Studio/8 from other color paint programs.

Continued from Page 34

(except the Color Sep utility) can read the Expert mode's rPIC format files, and the extra colors can be used only in the bands. Modern Artist still needs to have its color palette capabilities enhanced.

Documentation. Modern Artist's documentation consists of the Version 1.0 manual with a 17-page addendum describing the new features in Version 2.0. It is generally adequate although a little rough around the edges. A couple of desk accessories that came only with the original version are still mentioned in the documentation, which is somewhat confusing.

Photon Paint. Photon Paint is a low-end color paint program with a number of special effects and features. It varies from the MacPaint standard in that the tools are displayed in a large window with larger than normal icons. About three-quarters of a 13-inch monitor are filled with the Status window, Tool window, color palette and Patterns window, leaving little room for your painting window. You can expand the window and even have it overlap the other windows if you like, but it makes working on large areas difficult at best. This software almost demands a large monitor.

A black-and-white version of Photon Paint that will run on a Mac Plus or SE is included. It has most of the features of the color version. Unfortunately, the window arrangement is claustrophobic on a 9-inch screen.

Special features. Photon Paint's best effect is Pixelation, which converts an image into larger pixels of a size defined by the user. It is quick and, used in moderation, effective. Other effects such as Twist, which appears to grab each end of the image and twist it into a spiral, and Wrap Onto, which wraps the selection onto a number of shapes, are fun but very slow and don't always appear to be accurate. The biggest problem we had with Photon Paint was its speed: One fill using a wash effect took more than 10 minutes, and most of the other special effects took two or three minutes to perform.

Its magnification abilities are impressive. To enlarge an area, you can either zoom the illustration window or use the Magnifying Glass, which will open another window at the next magnification. Any changes made to the document will appear in both windows, and the number of windows is limited only by system and hardware parameters or your speed requirements. The program magnifies in small steps as far as you could want (we went in until only one pixel was left on screen). We really liked this feature.

Annoying limitations. The brush shape is limited to 15 pre-defined sizes and cannot be edited, although the contents of the Clipboard can be used as a brush. The SprayCan size is determined by the brush shape, and you cannot control the flow rate. Photon Paint also does not work well with DAs, often not recognizing the active window and crashing. The program will save palettes and patterns separately, but you must specify which in the Save As dialog box. They should really be separate Menu options. Further, Photon Paint saves them as PICT files that cause crashes or errors when read by other paint programs.

Documentation. The program comes with one manual and a reference card. Disappointingly, the manual contains no illustrations, in either black-and-white or color. Lack of color might be understandable due to its high cost, but the other manuals managed to demonstrate their programs' functions in black and white. Worse, there is no index.

GraphistPaint II. GraphistPaint II, a French import, has a video bent. The program directly supports the QuickCapture card from Data Translations, and the file size defaults are listed as NTSC and PAL (the two most common video formats).

Features. Stencil is one of GraphistPaint's primary tools, and it operates much like its namesake. It is a full-size document that can be merged in several ways with your painting. Colors can be masked in the painting or the stencil, or the painting can be erased to reveal the stencil. Another document can be opened into a stencil, and a stencil can be saved like a painting, but the program does not warn of unsaved stencils when quitting.

While the stencil is a powerful feature, it means that the program requires at least 2 Mbytes of RAM. You should not use MultiFinder unless you have 5 Mbytes. GraphistPaint opens PixelPaint 1.0 files but only on a 5-Mbyte machine. Also, the program wouldn't run with a large monitor on a Macintosh that had only 2 Mbytes.

GraphistPaint has well-thought-out Distort and Rotate functions. We really liked the fact that when dragging a vertice of the marquee, images don't get redrawn until you click on the marquee. Thus, when performing a distort, you can drag all four corners to the shape you desire before the program recalculates everything. In other programs you have to drag one corner, wait for the redraw, then drag the other corner. GraphistPaint's method is much faster.

The program comes with 18 default palettes, and you can edit and save palettes separately.

Interface problems. We encountered a number of minor inconveniences that surprised us. GraphistPaint II does not handle DAs well; it keeps both program and DA windows active unless you specifically click on their title bars. There is no Cancel option in the Resize document command, and this cannot be undone. You can, however, enter "100" and effectively make no change. There is also no Cancel button in the Edit Pattern window.

You can only save one brush shape with a document, and you can only edit or create one brush shape within a document. This shape can be copied from the document itself, and the manual suggests that you create multiple brush shapes within the stencil.

Documentation. GraphistPaint's single ring-bound manual is sparse, but it covers all the program's features. In some places it is ambiguous, and some descriptions of the special effects are hard to grasp. The translation from French seems to be acceptable, but just barely.

Studio/8. It is rare that we encounter a program that tries to improve upon the Macintosh interface — and works. Usually these attempts backfire, but Studio/8 is an exception. Studio/8 is also a powerful paint program combining many paint options and special effects not found elsewhere.

Overview. Most of Studio/8's features can be edited, modified and saved, except for palettes, which cannot be saved separately from a document. You can even save files in color TIFF format. As well as the standard paint tools, the toolbox includes nine modifier icons. These control the selection and shape tools.

Gradients are defined by either specifically choosing the colors that make up a gradient or entering the starting and ending colors. Gradients, Fill Patterns, the Color Palette, Pen sizes and the image magnification are all accessed through pop-up windows in the main toolbox, which can be torn off and placed anywhere on screen.

The Pickup effect merges the last shape drawn or selected with the colors originally in the illustration. You can define how the program merges the two layers together. One nice option makes the top layer transparent by a user-defined amount.

Textures provided with the program, such as marble, brick, satin and leather, can be defined as brushes, allowing easy background painting and interesting effects.

The Mask menu allows you to mask selected colors and is easy and intuitive to use.

The Perspective Tool will create a perspective plane using the current selection. You can easily control the orientation and distance between the imaginary viewer and the plane.

Interface enhancements. As mentioned earlier, Studio/8 improves on the standard Macintosh interface. The Open dialog box allows you to preview the contents of files before opening. The Airbrush modifier dialog box includes a test area that allows you to play with the airbrush before working on your illustration. We hope these useful features will find their way into other applications.

Problems. We were surprised to find that you cannot save a Studio/8 palette separately from a paint file. Studio/8 also had a problem opening a Canvas 2.0 PICT file; it didn't use the correct colors to display the file although it did seem to preview them correctly. Curiously, Studio/8 did a better job of opening a file created by GraphistPaint II. It was able to match its palette rather than use the standard Apple palette.

Documentation. The manual is a hard-bound book complete with color illustrations. It is the best-looking of those reviewed and is written as a series of examples of how to use each tool.

The program also comes with sample brushes, backgrounds and textures, as well as two useful utilities. ColorCam is an FKey that takes a color snapshot of the screen. Gallery will create a desktop presentation, allowing you to define a series of illustrations to "play."

Conclusions. We were pleased with the depth and quality of all of these programs. They attest to the sophistication and technical proficiency of Macintosh users as well as the advantages of the standard Mac user interface. The programs became progressively easier to master because of their commonalties, although some features stood out in each case.

The developers of Modern Artist have improved on their program with Version 2.0, and while it lacks some features of the other programs, it has added a strong one in the Color Sep utility. This utility is a major step forward and may justify purchasing the program even if you have another color paint application.

Photon Paint is at the low end of the color paint spectrum. It is rather slow and has fewer features. However, its low price and black-and-white version should appeal to many. Some of its special effects, such as Pixelation and shape wraps, may make it a worthwhile purchase even for those owning a more sophisticated program.

GraphistPaint II includes several exceptional features, such as Stencil and Spherization effects, and its direct interface to a video-capture board is unique. It could find a niche in the video market if it continues to develop.

Studio/8 is loaded with features. It also adds some clever user interface improvements. We liked it the best of the four programs reviewed here. ☐

Michael Murie is a consultant who develops multimedia presentations.

With GraphistPaint II, you can capture video images and use them in your paintings.

Monitors that capture the really big picture

BY GREG FLETCHER

The Mac desktop presentations market has exploded in the past year, and corporations will sooner or later need to purchase large-screen monitors or projectors to show off their beautifully produced slides and animations. However, monitor technology becomes complicated and expensive at the board room level. Overhead- and forward-projection units and large monitors are all possible solutions, but each has its drawbacks.

Liquid-crystal display panels for overhead projectors are adequate for smaller presentations, but they have relatively poor visibility in large rooms and cannot display color (see MacWEEK, Sept. 18, 1988). Most forward-projection units and large monitors cannot scan at the 35-kHz horizontal rate of the Mac II, and they usually require ceiling mounting and room tuning. Further, truly high-quality forward-projection systems are extremely expensive. If you need a high-quality large monitor with both Mac II RGB and composite video compatibility, there are three products on the market that might fit your needs:

▸ The NEC DP5200S.
▸ The Mitsubishi AM-3501R.
▸ The Mitsubishi XC3710.

NEC DP5200S. NEC's 52-inch monitor is a rear-projection unit. This is essentially its forward-projection unit (the DP-1200A) housed in an attractive but heavy hardwood cabinet. The monitor has a Fresnel screen, which yields a rich, non-reflective image, but viewers must be located directly in front of the picture. For those as little as 30 degrees to the left or right, or up or down, the image darkens drastically. This is the monitor's biggest drawback.

Since the base is only about a foot and a half high, the screen must be elevated for viewing by a roomful of people. The monitor must also be canted forward due to the Fresnel effect. A custom base is almost mandatory. However, at the proper height and angle, the NEC's image quality is superb, with rich colors and texture. Normal text in most programs can be read easily from almost 50 feet away.

Movement and changes in temperature and humidity force frequent reconvergence of the picture, which is a complex task. The small curvature we take for granted on a computer monitor becomes pronounced on such a large screen. Also, since the surface area of the reflected light is so large, not all parts of the image focus the same way, so they must be converged separately. NEC is the only one of the large screens that does static, dynamic and point/zone convergence digitally and via the remote. But it takes a skilled hand to do it in less than 30 minutes.

The entire monitor package consists of the big projector cabinet on wheels with built-in speakers, five input ports (three RGB and two video), an input source selector, convergence service remote control (wired), two user-remote controls (one wired, one wireless), RGB connecting cables, control cable and an owner's manual. The unit weighs 401 pounds, but it is easy to move on its base wheels.

NEC recommends an additional cable and a line amplifier, purchased separately, to support the Mac II's analog signal. The Mac Plus and the SE output a TTL signal and require special conversion kits, which run from the motherboard CRT wire to the video controller.

The NEC is compatible with virtually every video format. It supports not only RGB TTL/Analog, but five other video standards: NTSC 3.58, M-NTSC 4.43, PAL, SECAM and S-VHS. All sizes (VHS, Beta, 0.50-inch, 0.75-inch and Super Video) are supported, and it has multisynchronous scanning capability to automatically lock onto any data input, from 15 kHz to 36 kHz horizontal and 38 kHz to 100 kHz vertical. Although we did not test the NEC with NTSC video boards, we did test it with VHS input and had no problems.

Almost any control or command, including convergence, can be accomplished from remotes. Up to eight convergence settings can be stored, so you can toggle between settings when you switch input sources. Monochrome graphics and text can even be colorized at the press of a button.

NEC tech support ranged from fair to good. However, the manual was not as good as it should have been, and at times it assumed a high level of expertise. You'll need a local dealer to support you until you become skilled and patient enough to do the convergences yourself. Make sure to ask for the Mac II interface cable and a line amplifier if you will need them.

Mitsubishi AM-3501R and XC3710. There is much confusion in the field between these two monitors. The parent company in Japan manufactures the base CRT and then directs it to two different markets through two different companies with similar names and two different distribution chains.

The similarities. Both monitors are commonly referred to as the "the 37-inch Mitsubishi," but that's a misnomer. Each CRT has the same 35-inch viewing area on a 37-inch screen, but the AM-3501R, manufactured by Mitsubishi Electronic Sales America (MESA), has a black plastic inlay around the edges to cover up the unused portion, while the XC3710, manufactured by Mitsubishi Electronics America (MEA), does not.

MESA's AM-3501R CRT comes housed in an attractive black casing with two stereo speakers and no stand or wheels. At 242.5 pounds, the unit needs both. It comes with most cables, but, as with the NEC, you may need an extra Mac II cable or line amplifier.

COURTESY MITSUBISHI

The Mitsubishi XC3710 (above), frequently seen at trade shows, has a 30-MHz bandwidth video amplifier. The AM-3501R is targeted at commercial and industrial markets.

The XC3710 comes in an unattractive white casing with two stereo speakers, also without stand or wheels. A base unit with a high perch and lower cabinets with doors can be purchased separately from MEA in the same white-Formica look. MEA also distributes the XC3710-U, the same machine without speakers suitable for wall or ceiling mounts. MEA does not recommend a line amplifier unless the signal source is 30 feet or more from the screen.

Both monitors are multiscan, capable of automatically adjusting to the scan rate of the computer video card (Mac II, EGA, CGA and high-resolution monochrome are supported) within a 15.75-kHz to 35.5-kHz horizontal scan range, which is within the demands of the Mac II. Both machines are compatible with NTSC, RGB analog (Mac II) and RGB TTL (Mac Plus and SE). Both have tinted faceplates to reduce glare. The glare is still a problem, though, because the strong overhead lighting found in most corporate environments shows on screen and reflects window images.

Both monitors allow you to adjust the vertical and horizontal scanning to fill the entire viewing area. When switching scan rates, for example, between an EGA source on one channel and RGB on another, the resulting image is not automatically centered on screen. Centering and convergence can't be accomplished from the remote.

The differences. There are two key areas of difference between these two Mitsubishi monitors: video amplifier bandwidth and video standard compatibility. The machines have been targeted for different markets and therefore exhibit varying strengths.

The Mitsubishi XC3710 is the one you most often see at computer trade shows. The 30-MHz bandwidth video amplifier is the main reason. Video card manufacturers rate a minimum of 20 MHz to 25 MHz for their monitors. The XC3710 can achieve a resolution of up to 800 by 560 pixels. A Mac II color image will appear more vibrant on this machine.

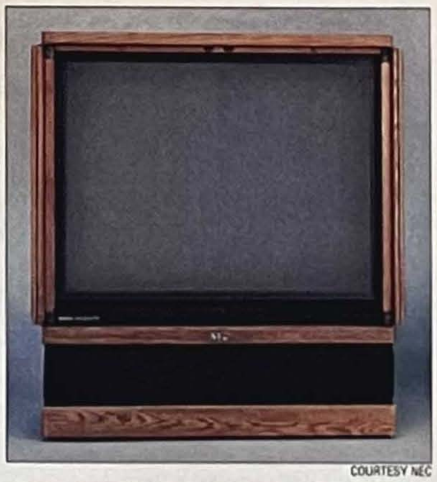
The Mitsubishi AM-3501R is targeted at the commercial and industrial markets. The video input compatibilities are impressive: NTSC, M-NTSC, RGB analog, RGB TTL, monochrome TTL, PAL, SECAM and S-VHS. The lower video amplifier bandwidth reduces the resolution peak to about 720 by 520 pixels. It also has a push-button de-Gauss and an automatic centering button.

The tech support was excellent at MEA, less so at MESA. Product support (cabinets, cables, peripherals) seems to be better at MEA as well.

Conclusions. Your decision on which monitor to buy should be determined by your needs, such as room size, machine and video format compatibility, and cost and operation skills needed. Look at these monitors in operation before buying. Think about the specific connectivity issues you may have in a year or two years and then decide.

If you've got one room that is narrow or longer than 30 feet and if you want the biggest and best picture available, or if you need the ultimate in video connectivity, the NEC DP5200S will fill the bill. If you have several rooms or a traveling show based on computer input with limited video connectivity, the Mitsubishi XC3710 may be best. If you need connectivity to a wide variety of video standards at a lower cost, try the Mitsubishi AM-3501R. □

Greg Fletcher is president of Helix Inc., a New York-based documentation and corporate presentations company.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Viewers see the best image when directly in front of the NEC DP5200S.

Mitsubishi XC3710

Mitsubishi Electronics America
Information Systems division
991 Knox St.
Torrance, Calif. 90502
(213) 515-3993

List price: **$7,599**

+ Strong video amplifier bandwidth; good speakers; bright, clear CRT picture; good remote.

− Accepts relatively few video standards; convergence needs to be reset manually when changing scan rates; base not included; straight lines curve near edges; text visibility poor after 15 feet.

Mitsubishi AM-3501R

Mitsubishi Electric Sales America
110 New England Ave. W.
Piscataway, N.J. 08854
(201) 981-1414

List price: **$6,900**

+ Wide range of video compatibility; attractive black casing; good-quality on-board speakers; bright, clear CRT picture; good remote.

− Low video amplifier bandwidth; convergence needs to be reset manually when changing scan rates; base not included; straight lines curve near edges; text visibility poor after 15 feet.

DP5200S Data Projector

NEC
Professional Systems division
1255 Michael Drive
Wood Dale, Ill. 60190-1094
(312) 860-9500

List price: **$12,495**

+ Largest Mac II monitor available; excellent straight-on picture; excellent speakers and hardwood cabinetry; eight convergence settings in memory; excellent remote features; compatible with almost all known input sources.

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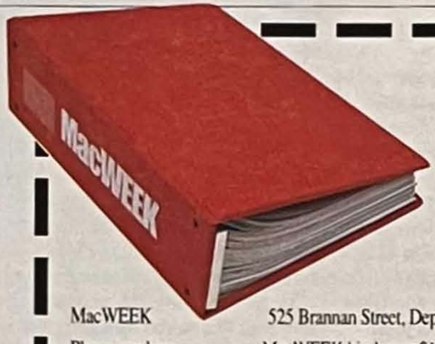

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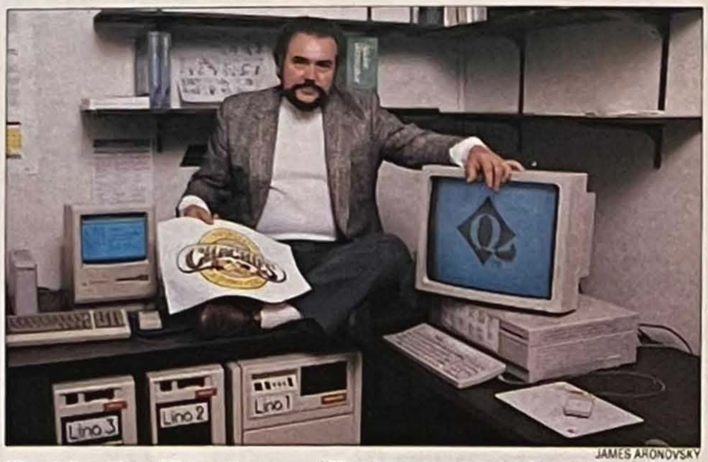
PostScript alliance formed

Service bureaus band together

BY STEVE HANNAFORD



JAMES ARONOVSKY

Chuck Surprise, PPA spokesman: "Members can freely share information with companies that they don't perceive as direct competitors."

SAN FRANCISCO — One of the most significant events of the recent Macworld Expo took place away from the exhibition halls and hospitality suites. It was the formation of an alliance of 16 major typesetting houses and design service bureaus from the United States and Canada, now known collectively as the Professional PostScript Alliance (PPA).

In several days of intense meetings scheduled around the show, charter members hammered out guidelines and elected a five-member board of directors. With its prestigious membership list and an ante of $10,000 per member, PPA hopes to play a major role in the development of the high-end electronic publishing industry.

"Our current members are, for the most part, traditional typographers with very good reputations in the industry, or in a few cases, new-wave designers who have been pulled into production by the Macintosh and PostScript," said Chuck Surprise, PPA spokesman and president of Central Graphics of San Diego.

Except in some of the larger publishing markets such as New York, Los Angeles and San Francisco, the group plans to limit enrollment to one member per market as it increases its roll to about 40 members.

"This way members can freely share information with companies that they don't perceive as direct competitors," Surprise said.

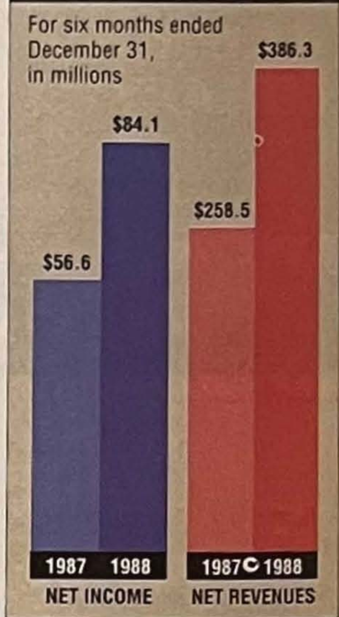
PPA plans to:

- ▸ Encourage and even underwrite specialized software and hardware development.
- ▸ Exchange information and experience through frequent meetings, seminars, publications and a private bulletin board.
- ▸ Arrange for group discounts and influence vendor planning.
- ▸ Develop training programs for the staffs and clients of members.
- ▸ Develop a national marketing and advertising strategy to promote the organization's collective services.

Even before an agreement was reached, the group had a taste of its collective influence. PPA members were bused from San Francisco to Adobe headquarters in Mountain View, Calif., for a sneak preview of new Adobe products. Members also spoke for several hours with senior Adobe officials, including John Warnock, president, who invited the group to start a dialogue with Adobe on the future of PostScript.

For more information call Chuck Surprise at (619) 234-6633, or write: Professional PostScript Alliance, c/o Design and Type, 739 Bryant St., San Francisco, Calif. 94107; (415) 495-6280. ☐

MICROSOFT'S EARNINGS



Record revenues for Microsoft

Microsoft Corp. reported its 13th consecutive record revenue quarter for the second quarter of its fiscal year 1989, ending Dec. 31. Revenues for the quarter were $209.9 million, a 35 percent increase over the $155.9 million for the same period of fiscal 1988. Net income for the quarter was $47.5 million, compared with $35.3 million for the same period of fiscal 1988.

CLIPBOARD

Archive gets big backing

COSTA MESA, Calif. — Archive Corp., a leading vendor of quarter-inch cartridge tape drives for the MS-DOS and workstation worlds and a recent entrant in the Mac market, has received some backup of its own from corporate maverick, multimillionaire and NeXT investor H. Ross Perot.

Archive recently announced it has entered into a technology investment agreement with the private H. Ross Perot Investment Group and has granted the group rights to warrants of more than 1 million shares of Archive common stock at an undisclosed fixed price. While Archive officials declined to disclose the terms of the investment, they said by exercising its rights to the stock, the Perot group would receive about 7 percent of Archive Corp. ☐

Quark moves marketing to Denver

MOUNTAIN VIEW, Calif. — Quark Inc. is packing up and moving its Mountain View, Calif., marketing division to its Denver headquarters, according to Quark President Fred Ebrahimi.

Quark, which markets the QuarkXPress and QuarkStyle desktop publishing programs, will continue to operate sales and R&D arms in Mountain View.

"Communication over a distance of 1,200 miles was difficult," said Carleen Nover, Quark office manager in Mountain View.

She added that the "less than a dozen" people affected were offered relocation to Denver.

Allan Ayars, who as vice president of marketing headed up the Mountain View offices, left Quark late last year to pursue other business interests. ☐

Dealer directories for executives

IRVINE, Calif. — Irvine Resource Group has announced the Apple US Dealer Directory, the first in a series of new information directories targeted at Macintosh sales and marketing executives.

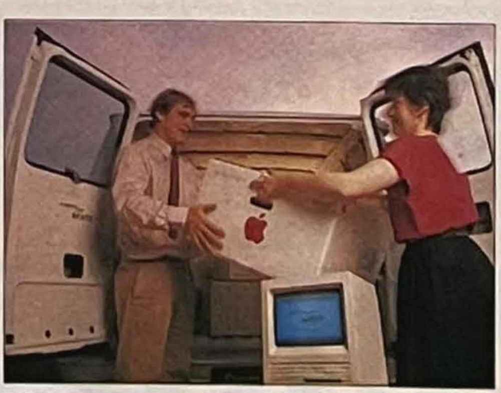
The Irvine, Calif.-based research company will release the Apple dealer directory in hard copy and on floppy disk in February. Buyers can choose from a variety of software formats, including HyperCard, FileMaker II, 4th Dimension or SuperCard, for their electronic version of the directory.

Listings in the Apple US Dealer Directory were compiled from the Yellow Pages and 150 daily newspapers, according to the company. The directory will cost $295, including one electronic format.

Irvine Resource Group is located at 91 Summerstone St., Irvine, Calif. 92714; (714) 786-0661. ☐

Businessland aims sights at rental market

BY RENEE MATHEWS



Rob Parenson, technician (left), and Brenda Fondel, operations manager, load Apple equipment into a van at the first Businessland Rents.

PLEASANTON, Calif. — Businessland Inc. has taken out a new lease on Macs by launching a series of computer rental "depots" designed to address the needs of corporate customers.

The San Jose, Calif.-based computer reselling giant opened this month the first in a series of Businessland Rents centers in Pleasanton, Calif., and according to Brian Leeland, vice president of the new business unit, the facility has already reported a greater interest in the Macintosh than normal industry averages would indicate.

"There's been significant interest in the bigger Mac systems like the Mac II and IIx configured with 4 Mbytes of RAM and big screen monitors," he said.

Businessland's decision to put new emphasis on the rental side of the computer business is the result of several factors:

- ▸ Numerous requests for rental equipment have come from major accounts.
- ▸ Computer rentals represent a significant market that is currently growing faster than personal computer sales.
- ▸ A computer rental service fits in well with Businessland's existing retail business operations.

"Businessland has offered rentals on a casual basis in the past, but it was all managed at the [retail] level," Leeland said. Businessland Rents will allow corporate customers to rent equipment without making the costly investment of purchasing both PCs and support services.

"We're providing the services we think are key to providing a more rounded product offering," he said. "Start-ups can rent to conserve on cash, and larger, more technologically advanced companies can add computers as they add people to various projects."

Plans for expanding the service into the Los Angeles area during the next six months are in the works. Over the next four years the company intends to open 20 to 25 depots across the country in most major markets.

Leeland estimated that the computer rental market, in general, will account for approximately $200 million to $250 million in 1989. ☐

Abvent USA closes doors

BY LASLO VESPREMI

EL TORO, Calif. — Abvent USA, the U.S. distributor of Space Edit, ArchiCAD and other 3-D and CAD applications of European origin, has ceased its U.S. operations. Its French parent company, Abvent, will continue to support the European market.

Hoping to fill the U.S. void, Graphisoft, the Hungarian company that developed ArchiCAD, opened U.S. headquarters in San Francisco earlier this month.

Graphisoft's principal product, ArchiCAD, is a $3,950 high-end architectural program featuring full 3-D and two-dimensional capabilities, colored and shaded renderings, extensive libraries, a DXF translator, and its own programming language for creating objects and macros.

"With our new office here we will be able to provide our customers with the same extensive, workstation-type support that our European clients get," said Gabor Pojar, Graphisoft president.

Support will include a 24-hour toll-free number and a resident programmer for problem solving, said Pojar. Graphisoft also intends to set up a national network of dealers for direct local support.

Graphisoft's new office is located at 400 Oyster Point Blvd., Suite 520, South San Francisco, Calif. 94080; (415) 266-8720. ☐

Ingram-Micro D merger likely

BY RENEE MATHEWS

BUFFALO, N.Y. — Ingram Industries Inc. has made its second bid in as many months for the 41 percent of Micro D's common stock it doesn't already own, and this time the deal seems likely to go through.

Ingram Industries, parent company of Ingram Computer Inc., a Buffalo, N.Y., distributor, acquired a majority interest in Micro D in 1986.

Ingram's bid of $14.75 per share, endorsed by a special committee of the Micro D board of directors, was approved by the full board earlier this month. In December the special committee had rejected an Ingram bid of $12.50 per share as "inadequate."

According to Chip Lacy, chairman and CEO of Micro D, shareholders will vote on final approval of the cash merger agreement by Feb. 6. "We are anticipating that the merger will be successful and Micro D will become a private Ingram company by late February," Lacy said, adding that he expects to remain with the company.

If approved by shareholders, the merger will make Ingram Computer the largest computer products distributor in the industry.

"Last year Ingram did more than $50 million in Macintosh business alone," said Louise Stanley, who was recently appointed vice president for Ingram's new Macintosh business unit. "And Micro D did at least two times that. So we expect our Macintosh business unit to pass the $200 million mark this year easily." Stanley said the combined value of Ingram Computer and Micro D would be approximately $1.2 billion.

Earlier this month Ingram announced an outbound sales support program targeted at small independent resellers and value-added resellers in secondary markets, along with two vendor-support tools:

▸ The Value Added Reseller Systematizer, a menu-driven expert system that helps dealers determine solutions for vertical markets.

▸ A series of video training seminars designed to provide resellers with comprehensive product information, as well as sales training and product presentation ideas. □

Discovery Software buys Studiotronics in a flash

BY CLAIR WHITMER

SAN FRANCISCO — It was a classic computer industry tale of see it, want it, buy it.

Annapolis, Md.-based Discovery Software came to Macworld Expo to sell its popular game Arkanoid. But when Discovery President Rick Ross happened by a demonstration of products from Studiotronics Inc. of Winter Park, Fla., he was impressed.

So he bought the company.

Studiotronics came to the expo with its first set of retail products, including ColorSet, a system that uses software and physical RGB (red, green, blue) filters to convert images scanned on gray-scale scanners into color images.

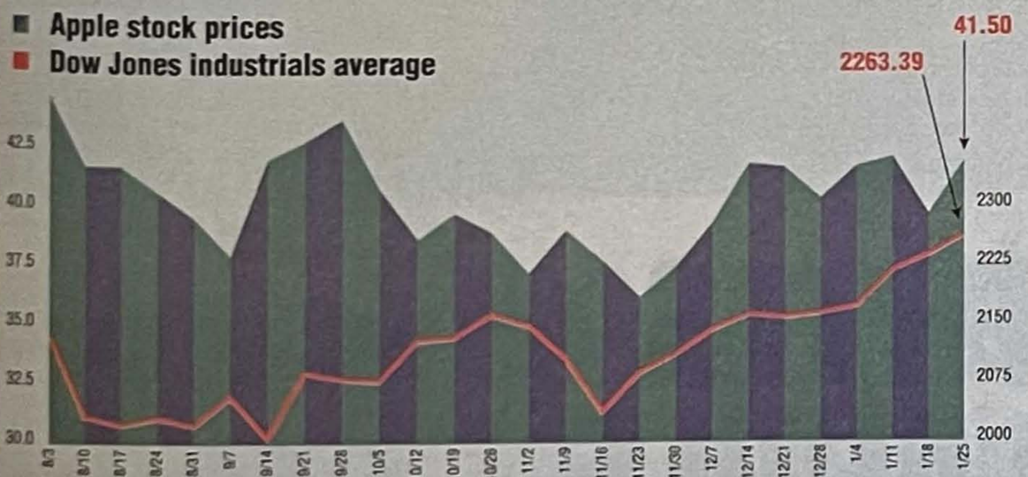
Within three days, the two companies had signed preliminary papers for Discovery to purchase 65 percent of the equity in Studiotronics.

Although Studiotronics is now a "Discovery Software company," it will retain its Florida-based offices and its management. Discovery will provide marketing and package design expertise, as well as development help on the ColorSet interface.

The companies hope to have an improved version out within three months. This new release will include driver support for "all major market scanners," scanner front-end software and speed improvements, said Ross. □

MARKETWEEK

STOCKWATCH



SE helps Apple bounce back as other high-tech companies place well

Apple rebounded last week from the previous week's sell-off to post a 4.4 percent gain en route to a close of $41.50 on Wednesday. Much of the gain came as the company unveiled a new version of its Macintosh SE to wide acceptance from the public and media.

While Apple took a beating after announcing quarterly earnings and margins, other high-tech companies basked in the glory of better than expected earnings.

Seagate posted earnings of $7.6 million, or 15 cents a share, compared with net income of $22.8 million, or 46 cents, a year earlier. The result: Seagate's stock soared 13.33 percent to close at $10.63.

Microsoft, up 2.91 percent, and Businessland, up 3.81 percent, both benefited from strong earnings results last quarter as well.

Macintosh-related stocks

		CLOSING PRICE 1/18/89	CLOSING PRICE 1/25/89	PERCENT CHANGE IN PERIOD	P/E RATIO	ANNUAL HIGH	ANNUAL LOW
MAC-RELATED COMPANIES	Adobe Systems	22.50	25.00	11.11	23	26.00	11.75
	Aldus Corp.	19.50	22.25	14.10	22	22.25	13.50
	Apple	**39.75**	**41.50**	**4.40**	**13**	**47.75**	**35.50**
	Ashton-Tate	21.75	20.75	-4.60	12	31.25	20.00
	Businessland	13.13	13.63	3.81	14	15.00	7.63
	Microsoft Corp.	51.50	53.00	2.91	19	70.50	45.25
	Motorola Corp.	42.00	43.75	4.17	13	54.63	35.88
	QMS Inc.	8.25	8.88	7.64	—	12.25	6.00
	Seagate	9.38	10.63	13.33	52	23.38	6.50
	3COM Corp.	22.50	23.38	3.91	23	24.63	15.63
INDUSTRY INDICATORS	Digital Equipment	99.63	111.63	12.04	12	127.38	86.38
	IBM	124.75	123.25	-1.20	14	129.50	104.50
	Sun Microsystems	17.63	18.63	5.67	19	20.38	13.00

S-Reflected stock split *O-Deficit* *Compiled by Nardby International Inc. Boulder, Colo.*

MARKETWATCH

A/UX takes a slice from the Unix pie

A recent study of large Macintosh installations shows that A/UX, Apple's Unix software, is penetrating many of these sites.

We selected a sample of 512 large Mac sites having a MacWEEK subscriber with purchase influence for connectivity products, and interviews were completed at 269 locations. All of the installations had 50 or more Macs, but the average was much higher — more than 1,000 Macs on site.

A/UX is in use by almost half (48 percent) of these large Mac sites.

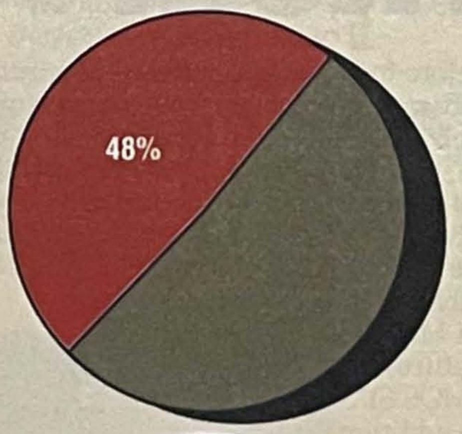
Although these are large Macintosh installations, most of their Unix machines are not Macs.

The 269 sites in the study average 94 other personal computers running Unix and 11 Macs with A/UX.

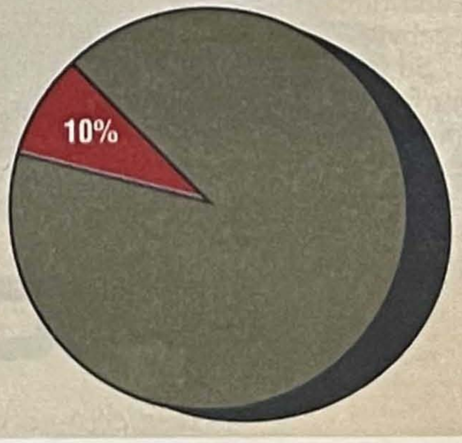
A/UX predominantly penetrates the education market; 65 percent of large Mac sites in education use A/UX, while 41 percent of the private industry sites and 40 percent of government/military sites use A/UX.

The organizations using A/UX are large. Of the locations using A/UX, 87 percent have 1,000 or more employees. — *By Griffin Dix*

Percentage of large Mac sites that use A/UX



Percentage of personal computers running Unix at large Mac sites that are Macs



Source: Evans Research

MAC THE KNIFE

Mac the Knife, GmbH

Judging from Mac the Knife's latest report, the Apple plumbers unit still has its work cut out for it. After a sneak preview of the famous '030 Tower Mac, sources couldn't wait to get on the phone with the Knife to share a few details (and nab another MacWEEK mug in the process). First, the machine may finally have a real live production name — at least it seems that way judging from the CX embossed on the front of the box. But, as everyone knows by now, Apple is capable of many surprises.

One aspect of CX, however, is not likely to be a ruse designed specifically to confuse the press. According to this source, the 73-pound CX tower has about the same footprint as the vanilla Mac II or IIx and is approximately as high as a II with an Apple Color Monitor stacked on top. More of a platinum-colored cube than a tower, you might say.

There was no word whether the new Apple 160-Mbyte drive, scheduled to be announced at March's Hannover Faire in Germany, will be an option on this most elephantine of all Macs. The new drive is the hot CDC WREN V half-height unit with an actual formatted capacity of 173 Mbytes.

Federal Republic today. The week also brought news of a new scanner technology from West Germany. Members of the Berlin company that developed the scanner software for Siemens' high-resolution Mac scanner have been seen around Silicon Valley showing a prototype OCR NuBus card that runs at between 60 and 80 characters per second with 99.85 percent accuracy. That's considerably faster than software-only solutions such as OmniPage. The plan is to include about 200 standard fonts with the board.

Plus, the HyperCard clone from Germany's Format Software, has undergone a pre-introduction identity readjustment and will be known henceforth as HyperTime. That's an order. Sources close to Format say HyperTime will begin in Europe soon. Alas, there is no U.S. distributor as yet.

Ragtime III, the new upgrade to Brüning & Everth Softwarepartners' page layout cum spreadsheet program, will be introduced in March in time for the Hannover Faire, but only for the European market. Cricket, which has marketing rights for Ragtime in the United States, has yet to make a decision about the new version, which is rumored to include SQL hooks. The word on the street is that Cricket wants to market a subset of Ragtime under a different name. The Germans disagree.

Back to the expo. Debate still rages about one of the most important aspects of the San Francisco expo earlier this month, namely, which party had the best food.

One source claims the winner was Software Ventures of MicroPhone II fame. In addition to the best food, it had some fairly interesting guests. The most dramatic moment of the evening was when Scott Watson, purveyor of the competing Red Ryder software, and his entourage made a grand, seemingly unexpected, entrance. Conversations all over the room were X-offed as a number of people dropped carrier. But gracious host and Software Ventures' high-bit David Hindawi soon made everyone feel welcome.

The rivalry between the two groups is indeed real, although friendly enough. Sources close to the Pennsylvania-based FreeSoft say Red Ryder 11.0 is hot and will provide considerable competition to MicroPhone II Version 3 or whatever else Software Ventures may come up with. Optimists look for an April release.

After some firm, but kind and gentle prodding, the Knife determined that RR 11.0 will be bundled with the long-rumored Okito Mac-to-Mac communications software that allows users to send and receive files simultaneously while at the same time carrying on a "chat" session. A second bundled product remains a mystery, but the Knife's source suggested that he imagine fax on the Mac without a fax modem.

Back to the food. Other sources claim the best food was to be had at Farallon's expo bash. While the Knife chooses to defer to more educated pallets in all matters culinary, he did get excited about the sneak preview at Farallon's party of a new backup application called Retrospect from DiskFit developer Dantz Development. It archives files from any hard disk, file server or floppy, and it archives to DC2000, DC600 and cassette tapes, disks, cartridges, optical drives and file servers. The under-$200 Retrospect also includes a built-in calendar allowing unattended backup.

MIS managers are drooling over a proposed feature for a later version that will automatically back up AppleShare file server drives. Retrospect's target release date is April, and for reasons that are less than perfectly clear, Dantz has chosen not to market Retrospect through SuperMac. □

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Considering this week's phone bills, the Knife is considering putting in a hotline to Hanover. Meanwhile, you can still earn a mug for good-old American tips, too. Call Mac at (415) 882-7370 or MCI (MactheKnife).

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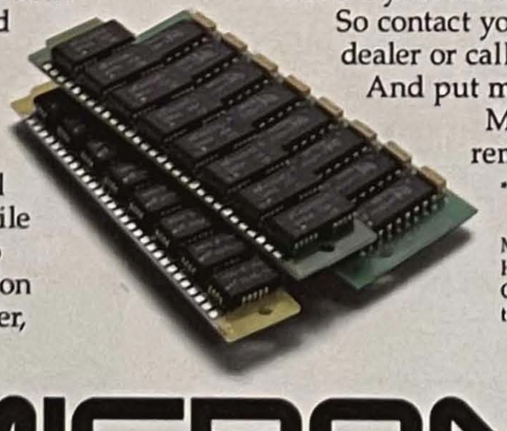

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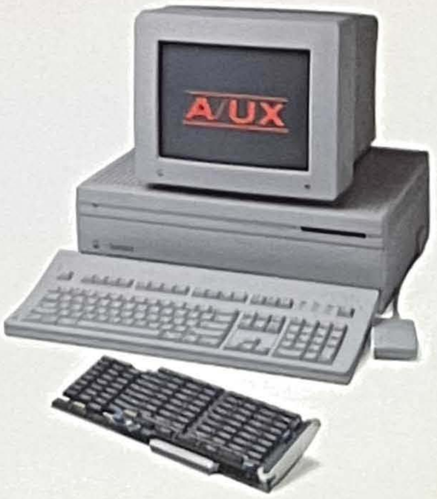

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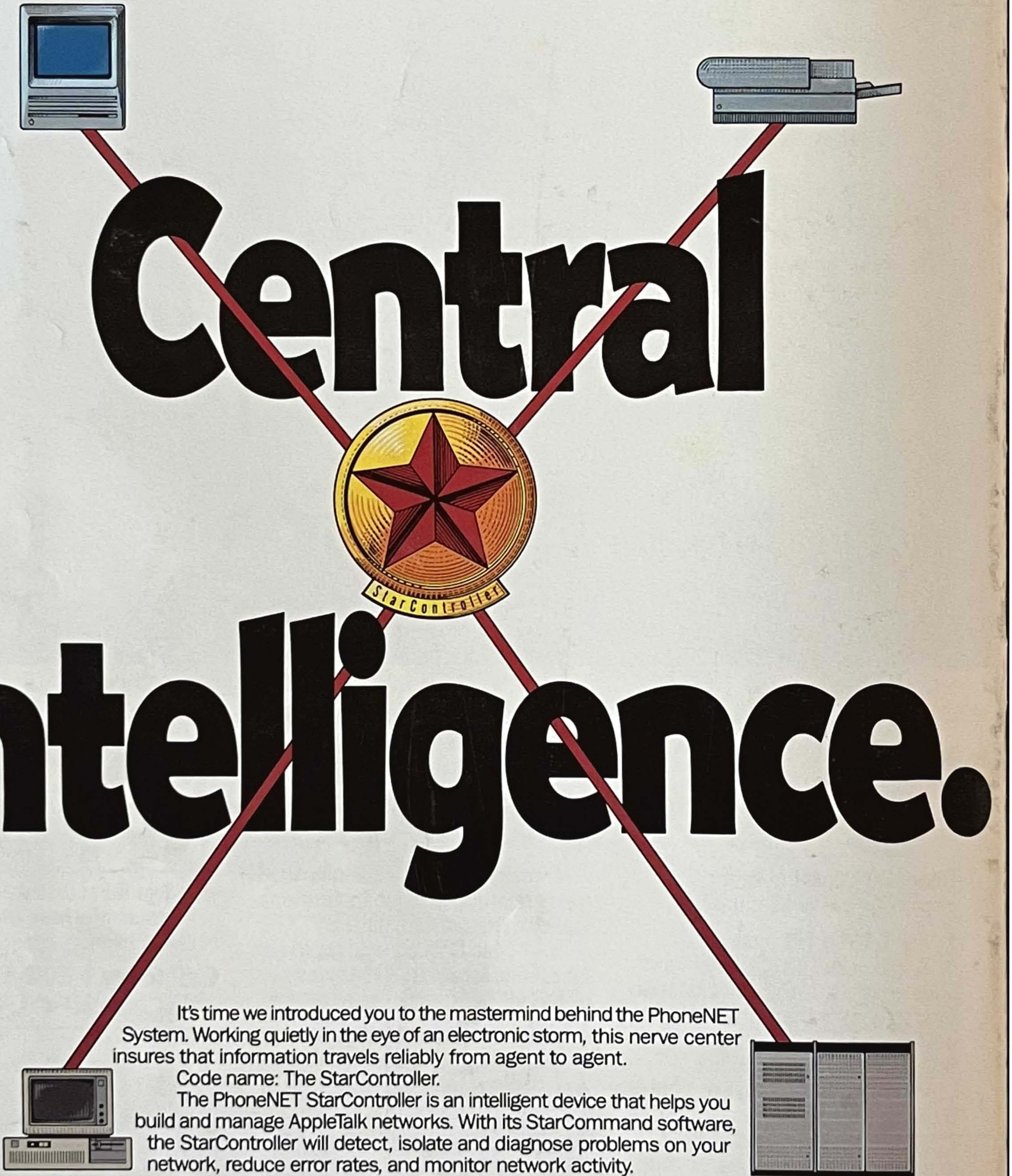

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